

## review

# Does Gambling Harm or Benefit Other Industries? A Systematic Review

Virve Marionneau<sup>1</sup> & Janne Nikkinen<sup>1</sup>

<sup>1</sup> Centre for Research on Addiction, Control and Governance, Faculty of Social Sciences, University of Helsinki, Helsinki, Finland

### Abstract

The economic benefits of gambling may be offset by economic harm to other industries. This economic phenomenon, also known as substitution or cannibalization, refers to a new product that diverts consumption and profits from other products or industries. Gambling may displace revenue from other businesses, but economic impact studies on gambling do not consider such shifts between expenditures. This paper presents a systematic review of the available evidence ( $N = 118$ ) on whether the introduction or expansion of gambling harms or benefits other business activity. Although the issue has been considered in previous review studies, no industry-level analysis is currently available. The results show that such an approach is necessary, as the impacts of gambling on other industries appear to depend strongly on the type of industry, as well as on the location and type of gambling. Industries that are negatively affected by gambling include other recreation, retail and merchandise, manufacturing, and agriculture and mining. Alcohol consumption, construction, and the finance, insurance, and real estate industries, as well as other services, appear to be positively affected by the presence of gambling. In other cases, the evidence is either mixed or inconclusive. These results nevertheless depend strongly on the type of gambling. Destination gambling appears to be more beneficial to other industries than recreational gambling. Overall, the results show that even in cases when gambling does substitute for other industries, the displacement is not complete. The reasons for this and the gaps in the existing evidence and literature are discussed.

**Keywords:** gambling, substitution, cannibalization, systematic review

### Résumé

Les avantages économiques obtenus des jeux de hasard peuvent être neutralisés par un préjudice économique porté à d'autres secteurs d'activités. Ce phénomène économique, également appelé substitution ou cannibalisation, fait référence au fait

qu'un nouveau produit détourne la consommation et les profits tirés d'autres produits ou secteurs d'activités. Les jeux de hasard peuvent également soustraire des revenus d'autres entreprises, mais les études d'impact économique sur les jeux de hasard ne prennent pas en compte de tels mouvements des dépenses. Ce document présente une analyse systématique des preuves disponibles (N = 118) permettant de déterminer si l'introduction ou l'accroissement de l'offre de jeux porte préjudice ou apporte un avantage à d'autres activités économiques. Bien que la question ait été examinée dans une précédente étude, aucune analyse des secteurs d'activité n'est actuellement disponible. Les résultats montrent qu'une telle approche est nécessaire, car les impacts du jeu sur d'autres secteurs d'activités semblent dépendre fortement du type d'activité, mais également de l'emplacement et du type de jeu. Les secteurs qui sont négativement touchés par les jeux de hasard comprennent les autres loisirs, la vente au détail et les marchandises, la fabrication, l'agriculture et les mines. Les ventes d'alcool, la construction, le secteur de la finance, des assurances et de l'immobilier et d'autres services semblent en contrepartie bénéficier de la présence de jeux de hasard. Dans d'autres cas, les preuves sont soit mitigées, soit peu concluantes. Ces résultats dépendent néanmoins fortement du type de jeu. Les destinations de jeux semblent être dans l'ensemble plus avantageuses pour les autres industries que le jeu récréatif. Dans l'ensemble, les résultats montrent que même dans les cas où le jeu se substitue à d'autres activités, le déplacement n'est pas complet. Dans cet article, on aborde les raisons sous-jacentes à ces mouvements ainsi que les lacunes dans les preuves existantes et la littérature.

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## Introduction

Gambling is often introduced with promises of boosting economic development by creating jobs, new economic activity, tourism, and increased government revenue (see Mallach, 2010; Richard, 2010; Walker, 1999). The expectation is that gambling can produce lasting benefits for the host communities by generating a multiplier effect, in which money spent on gambling circulates around the local economy (e.g., Gross, 1998). These economic benefits of gambling may nevertheless be offset by displacement, or cannibalization, of other industries. Cannibalization is an economic phenomenon by which a new gambling product diverts consumption and profits from existing gambling offers or from other industries (Walker, 2013). Although such substitution is a normal and beneficial part of the economy, it can also be problematic if it leads to higher levels of expenditures by attracting either tourism or consumer spending: The oncoming activity may have more negative externalities, it may not produce as many jobs or as much tax revenue as the receding activity, or it may engender opportunity costs, in which money and time spent on its development lessens the effort put into other sectors that might bring more sustainable benefits to communities (see also Goodman, 2003).

Economic impact studies on gambling risk exaggerate its positive effects if they do not consider such shifts between expenditures (also Anders, 2002; Productivity Commission, 1999; South Australian Centre for Economic Studies, 2008). Gambling can increase economic activity and trade, and it has innate value to consumers, sometimes measured in terms of consumer surplus (e.g., Walker, 2013). However, it can also displace revenue from other operations and businesses both within and outside the gambling industry (see Grinols, 1995; Pinge, 2008; Williams, Rehm, & Stevens, 2011). The introduction of gambling can even reduce overall government revenue, as gambling expenditure comes at the cost of other, more profitable, industries (Fink et al., 2004; Popp & Stehwien, 2002; Siegel & Anders, 1999; Walker, 2013; Walker & Jackson, 2011).

This paper presents a systematic review of available evidence into whether the introduction of new games, or the expansion of existing gambling offers, financially harms or benefits other business activity. The issue has been addressed in a number of publications, and previous review studies have already examined substitution between different gambling games (Marionneau & Nikkinen, 2017) and between gambling and other industries (Mallach, 2010; Philander & Bernhard, 2012; Rose, 1998; Williams, Rehm, & Stevens, 2011). The reviews by Mallach (2010), Philander and Bernhard (2012), and Rose (1998) focus only on casinos and are less comprehensive in scope. Furthermore, Mallach (2010), Rose (1998), and Williams, Rehm, and Stevens (2011) focus on wider economic impacts of casinos in which the issue of substitution of non-gambling industries with gambling is also discussed. The Williams, Rehm, and Stevens (2011) review is the most comprehensive, and it also includes the limited literature available on types of gambling other than casino gambling, but none of the previous reviews considers the financial impacts of gambling systematically by industry, leaving open the question of whether gambling affects different sectors in different ways.

The conclusions of these previous reviews are also contradictory. Philander and Bernhard (2012) found no conclusive evidence that the introduction of casino gambling harms existing business. On the contrary, other industries such as tourism, entertainment, restaurant services, and lodging benefit from the introduction of gambling. Mallach (2010) found that although casinos tend to have an overall positive impact on the economy, they may not bring about as many economic benefits as initially expected. Positive impacts are felt in particular in deprived areas and in government proceeds owing to the comparatively high levels of taxation. Williams, Rehm, and Stevens (2011) and Rose (1998) also concluded that positive changes were reported in relatively impoverished areas that introduced “destination gambling,” which attracts visitors from outside of the local area. Negative impacts were found in cases where patronage comes from the local area. In these cases, Williams, Rehm, and Stevens (2011) show that the introduction of gambling simply created changes in the local economy or had a negative impact on other businesses. The authors conclude that the local level of analysis in most empirical studies on inter-industry cannibalization fails to consider potential substitution in the wider adjoining area. Therefore, even when the introduction of gambling brings benefits to a

local community, it does not create additional wealth in the wider area, but simply changes the business patterns.

These contradictory findings suggest that relationships between gambling and other industries are complicated, vary between sectors and types of gambling, and may also depend on how they are measured. In this review of the existing literature, first we introduce the methodology and inclusion criteria of the studies considered. Second, we present detailed industry-level results of all study observations. Third, we discuss these industry relationships and the implications of the results.

### **Method**

The review was conducted by systematically searching scientific article databases. The keywords used were as follows: gambling, gaming, lottery, casino, betting, poker, wager, pari-mutuel, online gambling AND substitution, cannibalisation, displacement, complementary, economic cost, economic benefit, economic impact, and bankruptcy. We also used the corresponding search words in French.

We searched the following databases: EBSCOhost, ProQuest, Scopus, Web of Knowledge, Google Scholar, and Cairn.info (for French-language references). In addition, we searched Google for possible grey literature and reports, and we used a snowballing method by browsing the lists of references of articles and previous reviews for possible additional studies.

The sample was read and processed by both authors following an intercoder agreement that was based on mutually agreed on inclusion criteria, as follows:

1. The article presented original empirical evidence on the topic of whether gambling financially harms or benefits other industries. Previous reviews, hypothetical analyses on spending, and anecdotal evidence from small business owners were excluded.
2. The article dealt directly with the issue of financial impacts between gambling and other industries. This criterion excluded more general cost-benefit analyses and socio-economic impact studies conducted after the introduction of a new form of gambling, or the benefits of gambling on state finances, if these studies did not have calculations on the impacts on other industries. This also excluded studies that measured employment effects without considering the wider economic impacts, as well as studies that focused on how gambling affects real estate or infrastructure value.
3. The article had to be published between 1978 and 2018. The year 1978 was chosen as the beginning of the review because it corresponds to the opening of the Atlantic City casino market, which we expected to have encouraged researchers to investigate its effects on other industries.
4. The article had to be in English or French. The bulk of all references that were found were in English, and only one empirical article was found in French.

5. We had to be able to find the original text of the article for proper analysis. This criterion excluded in particular grey literature from the 1990s that was no longer publicly (electronically) available.

The initial sample of all the papers found by using the keywords described earlier consisted of 336 articles. Because of the search parameters, this sample did not include articles published in languages other than English or French or studies published before 1978. Of these 336 entries, 23 were removed because they consisted of double entries. Fifteen studies were excluded because they were not publicly available; 34 were excluded because they measured substitution on the basis of real estate, infrastructure, government tax, or consumer surplus effects rather than wider economic impacts. Finally, 220 additional papers were excluded because they mentioned the topic of cannibalization but did not measure it empirically. Applying the inclusion criteria brought the final sample down to 44 studies.

The sample is described in the PRISMA flow chart (see Figure 1). We noted the following information for each paper: reference, game and industry analysed (the impact of game X on industry Y), context, data, results, and method. The quality of each study was assessed by both authors on the basis of four methodological metrics. The first was whether the results were statistically rigorous. The study was awarded a point for this category if it included statistically robust checking or post hoc mechanisms to control for bias. Examples included controlling the impact of other variables and focusing on statistically significant coefficients. The second criterion was the use of longitudinal data as opposed to cross-sectional data. A point was awarded in this category if the study used longitudinal data, defined as more than three observation points in time, which could be, for example, years or quarters. The third criterion was whether the study used comparative observations from locations with no change, as opposed to a before-and-after analysis in one research context. A point in this category was awarded for studies that included comparative observations, such as comparing a community that introduced a casino to a similar community without a casino. Finally, the fourth criterion was the generalizability of results. A point was rewarded if the study included many states or countries as opposed to focusing on only one location. Following these metrics, we gave a score of up to 4 points in the analysis for the quality of the studies.

The studies are described in Table 1. Two-thirds of them ( $N = 29$ ) were published between 1995 and 2005, a period that coincided with the rapid global spread of gambling industries and opportunities (Sulkunen et al., 2019). Almost two-thirds of the studies ( $N = 28$ ) were conducted in the United States. The remainder were mainly from Canada, Australia, and Macau, with individual studies from other country contexts. Approximately four-fifths of the studies ( $N = 37$ ) focused on casinos. Four studies analysed non-casino electronic gambling machine (EGM) markets (also called video lottery terminals in certain jurisdictions), one analysed lotteries, and two discussed gambling in general. Approximately one-fourth of the studies concerned gambling at a country-level in which case the study context is marked as that

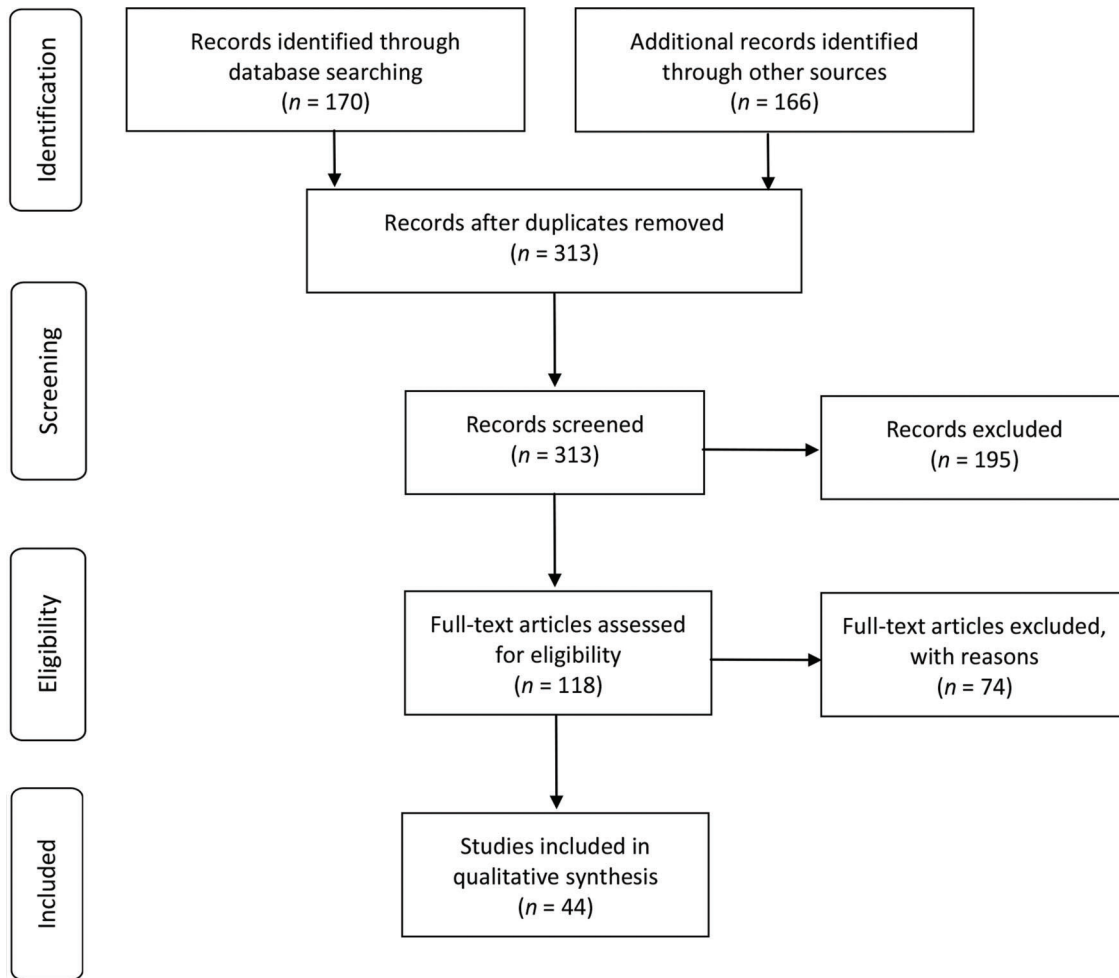


Figure 1. PRISMA flow chart. From “Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement” by D. Moher, A. Liberati, J. Tetzlaff, D. G. Altman, and The PRISMA Group, 2009, *PLoS Medicine*, 6(7), p. e1000097 (<https://doi.org/10.1371/journal.pmed.1000097>).

country. Most studies ( $N = 34$ ) were conducted in a specific jurisdiction, state or city within a country, in which case this is specified.

In 24 of the included studies, more than one type of relationship between gambling and another industry sector was assessed. As each result was considered separately in the analysis, a total of 118 observations were analysed in this review. In the following sections, the results of this review are presented. The focus is on whether the studies found financial impacts. We did not conduct a meta-analysis, because the studies apply widely varying statistical and qualitative methods that would not be possible to compare within the scope of this review. Instead, we focused on whether studies found a positive, a negative, or an ambivalent relationship between gambling and another industry sector. This was determined by reading the included studies carefully and noting the main conclusion as presented in the paper. The first step of the evaluation therefore relied on the reported results of each study. If the study found that gambling had a negative impact on industry X, this was noted as such.

Table 1  
*All References Used in the Systematic Review on Whether Gambling Harms or Benefits Other Industries*

Reference	Context	Data
Ackerman (1997)	South Dakota, USA	Economic data from the region, 1990–1995
Anders (1996)	Arizona, USA	Financial and employment data, FY 1993–1994
Anders (2002)	Arizona, USA	Financial data, 1992–2000
Anders et al. (1998)	Arizona, USA	Longitudinal tax data from one county, 1990–1996
Andersen (1997)	Louisiana, Mississippi, and Illinois, USA	Economic data from select counties, 1990–1996
Andrews (2007)	USA	Government financial data within a 50-mile radius of an Native American casino, 1983–1997
Australian Institute for Gambling Research (2000)	Victoria, Australia	Financial statistics, 1993–2000
Blevins and Jensen (1998)	South Dakota and Colorado, USA	Government revenue, number of businesses, anecdotal evidence, 1988–1996
Blue Thorn Research et al. (2007).	Vancouver, Canada	Hotel and motel revenue 2002–2006
Byron and Quiggin (1996)	Brisbane, Australia	Gross regional product of different business sectors, 1986–1991
Cartee and Gordon (1997)	Mississippi, USA	Retail sales revenue indexed, 1990–1995
Chhabra (2008)	Iowa, USA	Telephone survey of 250 residents at a 50-mile radius from the casino
Cotti (2008)	USA	County-level labour statistics, 1990–1996
Farrigan (2005)	Mississippi, USA	Industry output figures, 1990–1999
Fenich and Hashimoto (2004)	Colorado, South Dakota, and Atlantic City, USA	County business pattern data, 1984–1995, 1983–1995, 1970–1995
Garrett T (2004)	Midwest, USA	Employment statistics, 1986–2001
Gerstein et al. (1999)	USA	100-community statistical data and 10-community case studies in casino communities, 1980–1997
Goss and Morse (2004)	USA	Bankruptcy rates, 1990–1999
Grinols and Omorov (1996)	Illinois, USA	Business tax in casino locations and within a 0- to 5-mile, 5- to 10-mile, and in some areas 10- to 30-mile radius, 1989–1995
Hamer T (1982)	Atlantic City, USA	Employment statistics and projections, 1970–1980
Hang and Penny (2011)	Macau, China	40 interviews with local entrepreneurs
Hann and Nuffield (2005)	Ontario, Canada	Per capita retail sales, 1999–2004
Hashimoto and Fenich (2003)	Mississippi, USA	Number of restaurants, 1988–1996
Hicks (2003)	Colorado, USA	State revenue statistics, 1969–2001
Hsu (1998)	Iowa, USA	Survey of 519 business owners within 20 miles of the casinos, 1998; number of retail firms, hotel/motel tax, 1986–1996
Kearney (2005)	USA	Household surveys, 1982–1998

Table 1 Continued.

Reference	Context	Data
Leven and Phares (1997)	Missouri, USA	Tax data, gaming data, years unknown
MacDonald et al. (2004)	Canada	Canada's 1996 Family Expenditure Survey and 1997 Household Spending Survey
Marshall (1998)	South Australia, Australia	27 qualitative interviews with residents, including business owners, 1996
Mieiro et al. (2012)	Macau, China	Theoretical modelling based on gambling revenues and exports, 1998–2009
National Institute of Economic and Industry Research (2000)	Victoria, Australia	Household Expenditure Survey, 1994
Pinge I (2008)	Victoria, Australia	Victoria Commission for Gambling Regulation data, 2006–2007; National survey data on the restaurant sector, 2004–2005
Prevost M (2010)	France	GGR data from nine destination casinos in France and local data on hotel stays 2 years before and 2 years after casinos
Prybylski et al. (1998)	Indiana, USA, and Israel	Casino patronage (Indiana); casino demand (Israel), 1997
Rephann et al. (1997)	USA	Regional economic data, 1989–1993
Siegel and Anders (1999)	Missouri, USA	Industry-level financial data, 1994–1996
Sims K (2017)	Laos	Field work, document analysis, and 92 interviews, 2011–2015
Snyder (1999)	Mississippi, USA	Government statistics, 1992–1997
South Australian Centre for Economic Studies (2008)	Tasmania, Australia	Australian National Accounts for consumption, and Australian Gambling Statistics 2005, 1983–2006
Taylor et al. (2000)	USA	NORC data collected by NGISC on communities with over 10,000 residents with a casino introduced within 50 miles
Truitt (1996)	Illinois, USA	State budget, 1990–1994
Wan (2012)	Macau, China	17 qualitative key informant interviews, 2009–2010
Williams, Belanger, and Arthur (2011)	Alberta, Canada	Household expenditure surveys, 1997–2008; Canadian Business Patterns data, 1998–2008
Zheng and Hung (2012)	Macau, China	Number of companies dissolved and the amount of capital disinvested based on the Statistics and Census service data, 1999–2009

*Note.* FY = fiscal year; GGR = gross gaming revenue; NORC = National Opinion Research Center; NGISC = National Gambling Impact Study Commission.

This type of evaluation was used in Tables 3–14. For the overall results per sector (Table 2), we also assessed the reliability of this finding, with more weight given to studies that were ranked the best quality as described earlier, but we also included a comment on the scope of evidence and other additional observations that may affect the result.



Table 2

*Summary of Results on the Impact of Gambling on Different Industry Sectors by Type of Gambling (Destination or Convenience)*

Industry	Destination gambling	Convenience gambling	Comment
Entertainment and recreation	Mostly negative	Negative	Positive results only when gambling is included in calculations, otherwise mostly negative.
Restaurants, bars, and clubs	Mostly positive	Negative	
Hotels and tourism services	Mostly negative	Negative	Positive only for services adjoining destination gambling
Retail and merchandise	Mostly positive	Negative	Positive only for small-town destination gambling, but not as positive as expected
Alcohol	n/a	Positive	Limited evidence
Tobacco and drugs	n/a	Positive	Limited evidence
Construction	Positive	n/a	Includes construction of casinos
Manufacturing	Mostly negative	Negative	Limited evidence on convenience gambling; may also depend on economic processes
Housing and household expenses	n/a	None	Limited evidence
FIRE	Positive	None	Destination gambling may include needs of the gambling industry
Education	None	None	Limited evidence
TCPU	Mixed	None	Limited evidence
Agriculture and mining	Negative	n/a	Limited evidence; may also depend on economic processes
Services	Positive	n/a	Limited evidence
Unspecified local businesses	Mostly positive	Negative	Limited evidence

*Note.* n/a = not available; FIRE = finance, insurance, and real estate; TCPU = transportation, communication, and public utilities.

## Results

The reviewed observations considered a wide array of possible relationships between gambling and other industries. The results are summarized in Table 2. Although the table in a sense indicates that most relationships are more complicated than illustrated in this summary, it presents an overall picture of the kinds of financial impacts gambling has on other industries. Results of studies are separated into destination and convenience gambling because this appears to be the main dividing line between observations. Destination gambling is here defined as mainly casino-type gambling characterized by tourism and higher economic returns. Convenience

Table 3  
*The Effect of Gambling on Entertainment and Recreation Industries*

Reference	Studied sectors (gambling on industry)	Impact	Result	Quality
Anders (2002)	Casinos (Native) on amusement	Negative	Number of EGMs is negatively correlated with tax collection on amusements; consumption is local.	3/4
Anders et al. (1998)	Casinos (Native) on amusement	Negative	Introduction of tribal casino decreased tax revenue from amusement.	2/4
Australian Institute for Gambling Research (2000)	Casinos on leisure industries	Negative	The casino has had a strong redistributive effect on local leisure and entertainment industries despite increased tourism.	1/4
Prybylski et al. (1998)	Casinos on entertainment	Negative	Offer of historic, sightseeing, and evening entertainment has declined since the introduction of casino gambling.	1/4
Siegel and Anders (1999)	Casinos on entertainment and recreation	Negative	Gambling substitutes for other entertainment and recreation. 10% increase in gambling is associated with a decline of 2.9%–5.9% in sales tax revenue in other entertainment.	2/4
South Australian Centre for Economic Studies (2008)	Gambling on recreation and culture	Negative	A 1% increase in gambling expenditure leads to a 0.65% reduction in expenditure on recreation and culture (relative to its trend).	3/4
Byron and Quiggin (1996)	Casinos on recreation	Positive	The model shows that AUD 100 million spent on casino gambling would increase the recreation sector by 47.9%, but gambling is included.	2/4
Cotti (2008)	Casinos on entertainment	Positive	Employment in entertainment industries is over 50% higher in casino counties than in the control group, but this included gambling.	4/4
Gerstein et al. (1999)	Casinos on recreation	Positive	In comparison to baseline levels, the introduction of casinos increased recreation and amusement by 22%.	3/4
MacDonald et al. (2004)	Casinos on entertainment	Positive	Gambling households spend more on entertainment, but the study does not specify whether this includes gambling.	3/4
Taylor et al. (2000)	Casinos on recreation	Positive	In comparison to baseline levels, the introduction of any casino increased recreation earnings by 55%. However, near Native American casinos, recreation earnings increased by only 17% and near large-market Native American casinos, decreased by 40%.	3/4
Williams, Belanger, and Arthur (2011)	Gambling on recreation	None	No impact.	3/4

*Note.* EGM = electronic gambling machine.

Table 4  
*The Effect of Gambling on Restaurants, Bars, and Clubs*

Reference	Studied sectors (gambling on industry)	Impact	Result	Quality
Anders (2002)	Casinos (Native) on restaurants	Negative	Number of EGMs is negatively correlated with tax collection on restaurants/bars; consumption is local.	3/4
Anders et al. (1998)	Casinos (Native) on restaurants	Negative	Introduction of tribal casino decreased tax revenue from restaurants and bars.	2/4
Australian Institute for Gambling Research (2000)	EGM clubs on non-EGM clubs	Negative	EGM clubs have had a strong negative impact on non-gambling clubs and hotels.	1/4
Gerstein et al. (1999)	Casinos on restaurants	Negative	In comparison to baseline levels, the introduction of casinos decreased per capita spending on restaurants by 19%.	3/4
Pinge (2008)	EGMs on restaurants	Negative	The switch in expenditure in Bendigo towards EGM gambling cost the region an estimated AUD 20.542 million and 207 jobs in food, beverage, and club sectors.	1/4
Andersen (1997)	Casinos on restaurants	Positive	The introduction of casinos caused growth in restaurant sales (+4.3% from 1994 to 1995, excluding casino offer) in all study localities.	1/4
Fenich and Hashimoto (2004)	Casinos on restaurants	Positive	Casinos increased the activity of the food and beverage industry (excluding casinos). After the introduction of casinos, restaurant numbers increased in Deadwood by 11% (6 years afterward), in Blackhawk and Central City by 30% (6 years afterward), and in Atlantic City by 40% (17 years afterward). In Cripple Creek, the number of restaurants decreased by 75% (6 years afterward).	2/4
Hashimoto and Fenich (2003)	Casinos on restaurants	Positive	The number of restaurants increased in each county after the introduction of casinos, even excluding restaurants in casinos.	3/4
MacDonald et al. (2004)	Casinos on restaurants and bars	Positive	Gambling households spend more on restaurants and bars than do non- gambling households (CAD 1,361 versus CAD 1,234).	3/4

Table 4 Continued.

Reference	Studied sectors (gambling on industry)	Impact	Result	Quality
National Institute of Economic and Industry Research (2000)	EGMs on restaurants	Positive	Self-reported spending on restaurant meals and takeaway food was complementary to EGM spending.	1/4
Taylor et al. (2000)	Casinos on restaurants	Positive	In comparison to baseline levels, the introduction of any casino increased restaurant earnings by 1%. However, near Native American casinos, restaurant earnings decreased by 9% and near large-market Native American casinos, decreased by 72%.	3/4
Grinols and Omorov (1996)	Casinos on restaurants	None	\$1,000 spent on casinos had no effect on the earnings of the food and beverage sector (but included the casino).	
Prybylski et al. (1998)	Casinos on restaurants	None	Restaurant services have remained constant despite increases in casino offers.	1/4
South Australian Centre for Economic Studies (2008)	Gambling on restaurants	None	No impact.	3/4

*Note.* EGM = electronic gambling machine.

Table 5  
*The Effect of Gambling on Hotels and Tourism Services*

Reference	Studied sectors (gambling on industry)	Impact	Result	Quality
Anders (2002)	Casinos (Native) on hotels	Negative	Number of EGMs is negatively correlated with tax collection on hotels; consumption is local.	3/4
Anders et al. (1998)	Casinos (Native) on hotels	Negative	Introduction of tribal casino decreased tax revenue from hotels/motels.	2/4
Chhabra (2008)	Casinos on other tourism industries	Negative	The average Likert scale showed that despite a boost for tourism, local business has been negatively affected (2.85 for the resort casino; 2.81 for the non-resort).	1/4
Leven and Phares (1997)	Casinos on holidays	Negative	Money spent at the casino gambling reduced money spent on holidays by -19 dollars.	1/4
Gerstein et al. (1999)	Casinos on hotels	Positive	In comparison to baseline levels, the introduction of casinos increased per capita earnings from the hotel and lodging sectors by 43%.	3/4
Hamer (1982)	Casinos on hotels	Positive	Compared with a model without casinos, casinos created more employment in hotel and accommodation services.	2/4
Marshall (1998)	EGMs on hotels	Positive	Hotels reported increased profitability, partly because EGMs are located in hotels.	0/4
Prevost (2010)	Casinos on hotels	Positive	Nights spent at hotels increased by 5.02% 2 years after the opening of a casino in comparison to 2 years prior. In the whole region, nights spent in hotels increased by 1.11%. Number of hotel rooms close to casinos increased by 0.55%, but declined in the region by 1.86%.	2/4
Blue Thorn Research et al. (2007)	Gambling (casinos and race tracks) on hotels	None	Consistent increase in hotel revenue following the introduction of gambling, but patrons suggest this cannot be attributed to gambling. A similar increase was also reported not only in the region, but in the province.	3/4
Cotti (2008)	Casinos on hospitality	None	The presence of casinos did not have a statistically significant impact on hospitality industries.	3/4

Table 5 Continued.

Reference	Studied sectors (gambling on industry)	Impact	Result	Quality
Hang and Penny (2011)	Casinos on tourism ventures	None	85% of respondents reported no impact or both positive and negative impacts, 10% reported only positive impacts, and 5% reported only negative impacts.	0/4
Hsu (1998)	Casinos on hotels/ motels	None	The majority of business owners perceived no change in their business level and no impact was reported on hotel/motel tax collection after the introduction of the casino.	2/4
Prybylski et al. (1998)	Casinos on hotels	None	Lodging services have remained constant despite increases in casino offers.	1/4
South Australian Centre for Economic Studies (2008)	Gambling on hotels	None	No impact.	3/4
Truitt (1996)	Casinos on tourism business	Both	The introduction of casinos did not stimulate economic development and tourism to the degree expected. There was some growth in tourism businesses in small towns, but none in larger towns.	1/4

*Note.* EGM = electronic gambling machine.

Table 6  
*The effect of Gambling on Retail and Merchandise*

Reference	Studied sectors (gambling on industry)	Impact	Result	Quality
Ackerman (1997)	Casinos on retail	Negative	Increased business failures (75% of businesses on the main street became casinos; other retail shops disappeared).	2/4
Anders (2002)	Casinos (Native) on retail	Negative	Number of EGMs was negatively correlated with tax collection on retail; consumption is local.	3/4
Anders et al. (1998)	Casinos (Native) on retail	Negative	Introduction of tribal casino decreased tax revenue from retail.	2/4
Blevins and Jensen (1998)	Casinos on retail	Negative	78 retail businesses converted to casinos in Deadwood during study period. Smaller scale cannibalization in the other communities.	1/4
Byron and Quiggin (1996)	Casinos on retail	Negative	The model shows that AUD 100 million spent on casino gambling would reduce output of wholesale and retail by -2.8%.	2/4
Garrett (2004)	Casinos on retail	Negative	Comparison of employment levels in counties before and after the introduction of casinos showed a negative impact on retail in 5/6 of counties.	2/4
Grinols and Omorov (1996)	Casinos on retail and merchandise	Negative	1,000 dollars spent on casinos equals average losses in retail and wholesale of -247 USD in all locations; general merchandise: -120 USD with variations.	3/4
Hicks (2003)	Casinos on retail	Negative	Retail income declined by 32% in conterminous counties of casino locations.	3/4
Leven and Phares (1997)	Casinos on retail	Negative	Money spent on casino gambling reduced other purchases by -287 dollars.	1/4
National Institute of Economic and Industry Research (2000)	EGMs on retail	Negative	Self-reported spending on household expenditures were substitutes for EGM spending.	1/4
Snyder (1999)	Casinos on retail	Negative	Retail sales rose rapidly after casinos were introduced, but included the casino and slowed down since. A comparable municipality with a mixed economy fared better in retail sales.	2/4
Taylor et al. (2000)	Casinos on merchandise	Negative	In comparison to baseline levels, the introduction of any casino decreased merchandise earnings by 13%. Near Native American casinos, merchandise earnings increased by 10% and near large-market Native American casinos, decreased by 47%.	3/4

Table 6 Continued.

Reference	Studied sectors (gambling on industry)	Impact	Result	Quality
Anders (1996)	Casinos (Native) on retail	Positive	The theoretical model expects that the casino will benefit in retail, but this is based on the assumption that gambling comes from outside the local economy.	0/4
Andersen (1997)	Casinos on retail	Positive	Introduction of casino caused growth in retail sales (+10% in 1994 in Louisiana) (industry funding).	1/4
Cartee and Gordon (1997)	Casinos on retail	Positive	Retail sales in 1990 were indexed at 1. After the casino opened in 1992, retail was indexed in 1994 and 1995 at 1.55.	1/4
Farrigan (2005)	Casinos on retail	Positive	The introduction of casinos increased trade by 53%, as economic activity in Tunica was negligible before the casino.	2/4
Hamer (1982)	Casinos on retail	Positive	Compared with a model without casinos, casinos created more employment in trade.	2/4
Hann and Nuffield (2005)	Casinos on retail	Positive	Retail sales rose in all locations, but the positive impact was lower than expected.	2/4
Hsu (1998)	Casinos on retail	Positive	The total number of retail firms increased, but business owners did not experience a change in business after the casino.	2/4
Rephann et al. (1997)	Casinos on retail	Positive	The presence of casinos was linked with positive effects on retail.	4/4
Taylor et al. (2000)	Casinos on retail	Positive	In comparison to baseline levels, the introduction of any casino increased retail earnings by 3%. However, near Native American casinos, earnings stayed the same and near large-market Native American casinos, decreased by 5%.	3/4
Siegel and Anders (1999)	Casinos on retail	None	No significant substitution found.	2/4
South Australian Centre for Economic Studies (2008)	Gambling on clothing and footwear	None	No impact.	3/4
Williams, Belanger, and Arthur (2011)	Gambling on clothing	None	No impact.	3/4

Note. EGM = electronic gambling machine.



Table 7  
*The effect of Gambling on Alcohol, Tobacco, and Drugs*

Reference	Studied sectors (gambling on industry)	Impact	Result	Quality
National Institute of Economic and Industry Research (2000)	EGMs on alcohol and tobacco	Positive	Self-reported spending on alcohol and tobacco were complementary to EGM spending.	1/4
South Australian Centre for Economic Studies (2008)	Gambling on alcohol	Positive	The introduction of gambling was linked to increased sales of alcohol.	3/4
Sims (2017)	Casinos on drugs	None	The casino industry has not replaced the narcotics industry but offered additional income for narcotic elites.	1/4
South Australian Centre for Economic Studies (2008)	Gambling on tobacco	None	No impact.	3/4
Williams, Belanger, and Arthur (2011)	Gambling on alcohol and tobacco	None	No impact.	3/4

*Note.* EGM = electronic gambling machine.

gambling is characterized by higher accessibility, spatial dispersion, and local consumption (see, e.g., Egerer & Marionneau, 2019). The impacts are defined as either positive or negative in terms of financial impacts of the gambling industry on the sectors in question. How these financial impacts were defined differed slightly between studies, as they ranged from impacts on employment to impacts on revenue and business numbers. Table 2 is therefore only a summary of the average conclusions of the studies based on their own definitions rather than on a meta-analysis. In cases where studies on a particular sector were not available or studies reported no impact, we noted this in the table as not available (n/a) or none.

As the bulk of the evidence concerns casino-type gambling, it was not possible to assess impacts by game type. However, these impacts are discussed separately in the applicable result sections.

### **Entertainment and Recreation Industries**

The entertainment and recreation industries are considered the closest consumer substitute of gambling (Siegel & Anders, 1999). Casinos in particular may compete with other local entertainment, especially if they are nearby, but in the case of destination gambling, they may also draw increased visitation to the area. For this review, we found 12 observations that concerned the impact of gambling on other entertainment and recreation industries. The studies are detailed in Table 3.

Table 8  
*The Effect of Gambling on Construction*

Reference	Studied sectors (gambling on industry)	Impact	Result	Quality
Byron and Quiggin (1996)	Casinos on construction	Negative	The model shows that AUD 100 million spent on casino gambling would reduce output of construction by -3.3%.	2/4
Anders (1996)	Casinos (Native) on construction	Positive	The theoretical model expects that the casino will benefit construction, but is based on the assumption that gambling comes from outside the local economy.	0/4
Andersen (1997)	Casinos on construction	Positive (industry funding)	The introduction of casinos was linked to increased construction in all study localities.	0/4
Farrigan (2005)	Casinos on construction	Positive	The introduction of casinos increased construction by 510%, as economic activity in Tunica was negligible before the casino.	2/4
Gerstein et al. (1999)	Casinos on construction	Positive	In comparison to baseline levels, the introduction of casinos increased construction by 18%.	3/4
Hamer (1982)	Casinos on construction	Positive	Compared with a model without casinos, casinos created more employment in construction.	2/4
Rephann et al. (1997)	Casinos on construction	Positive	The presence of casinos is linked with positive effects on construction.	4/4

The results of the studies were split, with six studies observing a negative impact on other entertainment and recreation industries (Anders, 2002; Anders et al., 1998; Australian Institute for Gambling Research, 2000; Prybylski et al., 1998; Siegel & Anders, 1999; South Australian Centre for Economic Studies, 2008) and five studies showing a positive impact (Byron & Quiggin, 1996; Cotti, 2008; Gerstein et al., 1999; MacDonald et al., 2004; Taylor et al., 2000). One study (Williams, Belanger, & Arthur, 2011) did not find any impact.

A closer analysis revealed that in studies where gambling had been shown to have a positive financial impact on the entertainment and recreation industries, revenue from the gambling sector was also included in the calculations (Byron & Quiggin, 1996; Cotti, 2008; possibly MacDonald et al., 2004), or the researchers noted that the results were affected by the fact that the areas in which gambling was introduced had had little economic activity previously (Gerstein et al., 1999; Taylor et al., 2000). As Taylor et al. (2000) conclude in their geographical analysis, increases in the entertainment and recreation industries appear to be sensitive to the size of markets, with increases reported in small locations but overall decreases in larger markets.

Table 9  
*The effect of Gambling on Manufacturing*

Reference	Studied sectors (gambling on industry)	Impact	Result	Quality
Byron and Quiggin (1996)	Casinos on manufacturing	Negative	The model shows that AUD 100 million spent on casino gambling would reduce output of manufacturing by -3.7%.	2/4
Garrett (2004)	Casinos on manufacturing	Negative	Comparison of employment levels in counties before and after the introduction of casinos shows a negative impact on manufacturing in 5/6 of counties.	3/4
Mieiro et al. (2012)	Casinos on manufacturing exports	Negative	The casino boom in Macau is linked to a decline in manufacturing exports.	2/4
Farrigan (2005)	Casinos on manufacturing	Positive	The introduction of casinos increased manufacturing by 98%. The increase is due to almost non-existent economic activity in Tunica prior to casinos.	2/4
Grinols and Omorov (1996)	Casinos on manufacturing	None	1,000 dollars spent on casinos had no effect on manufacturing.	2/4
Hamer (1982)	Casinos on manufacturing	Both	Compared with a model without casinos, casinos created more employment in non-durable manufacturing, but reduced employment in durable manufacturing.	2/4

The results of this review support this suggestion. The studies by Anders (2002), the Australian Institute for Gambling Research (2000), Siegel and Anders (1999), and the South Australian Centre for Economic Studies (2008) found that convenience gambling appears to harm other local industries. In the case of destination gambling, other industries also appeared to be harmed if the studies did not include gambling in the entertainment sector calculations.

For these reasons, from the existing evidence, the economic impact of gambling on the entertainment and recreation industries was considered negative for both convenience and destination gambling.

### **Restaurants, Bars, and Clubs**

Fourteen study observations concerned the relationship between gambling and restaurants, bars, and clubs (see Table 4). The food, beverage, and restaurant sectors have been shown to consistently oppose the introduction of casinos because they fear that these establishments will adversely affect their business (Fenich & Hashimoto, 2004). Casinos often offer restaurant and bar facilities that may compete with other offers. Results of previous studies are nevertheless split.

Table 10  
*The Effect of Gambling on Housing and Household Expenses*

Reference	Studied sectors (gambling on industry)	Impact	Result	Quality
Kearney (2005)	Lotteries on food and housing	Negative	The introduction of state lotteries in the United States caused an average decline of \$46 (or 2.3%) per month spent on household non-gambling expenditure, such as food, rent, and other bills.	3/4
South Australian Centre for Economic Studies (2008)	Gambling on food and non-alcoholic beverages	Positive	The introduction of gambling is linked to increased sales of food.	3/4
South Australian Centre for Economic Studies (2008)	Gambling on dwelling	None	No impact	3/4
South Australian Centre for Economic Studies (2008)	Gambling on furnishing and household equipment	None	No impact	3/4
Williams, Belanger, and Arthur (2011)	Gambling on food and non-alcoholic beverages	None	No impact	3/4
Williams, Belanger, and Arthur (2011)	Gambling on dwelling	None	No impact	3/4
Williams, Belanger, and Arthur (2011)	Gambling on furnishing, household equipment, and household operation	None	No impact	3/4

Three studies found that gambling had no impact on the restaurant, bar, and club sector (Grinols & Omorov, 1996; Prybylski et al., 1998; South Australian Centre for Economic Studies, 2008). Five studies showed a negative relationship (Anders, 2002; Anders et al., 1998; Australian Institute for Gambling Research, 2000; Gerstein et al., 1999; Pinge, 2008). Three of these studies also concluded that cannibalization of the restaurant business took place because gambling was mainly directed at locals (Anders et al., 1998; Australian Institute for Gambling Research, 2000; Pinge, 2008), suggesting that convenience gambling in particular harms this type of business.

Six studies found a positive relationship between gambling and the restaurant and bar industry (Andersen, 1997; Fenich & Hashimoto, 2004; Hashimoto & Fenich, 2003; MacDonald et al., 2004; National Institute of Economic and Industry

Table 11  
*The Effect of Gambling on Finance, Insurance, and Real Estate (FIRE) and Education*

Reference	Studied sectors (gambling on industry)	Impact	Result	Quality
Hamer (1982)	Casinos on FIRE	Negative	Compared with a model without casinos, employment after casinos reduced in finance, insurance, and real estate.	2/4
Anders (1996)	Casinos (Native) on finance and real estate	Positive	The theoretical model expects that the casino will benefit finance and real estate, but is based on the assumption that gambling comes from outside the local economy.	0/4
Farrigan (2005)	Casinos on FIRE	Positive	The introduction of casinos increased FIRE by 46%, as economic activity in Tunica was negligible before the casino.	2/4
Rephann et al. (1997)	Casinos on FIRE	Positive	The presence of casinos is linked with positive effects on finance and real estate.	4/4
South Australian Centre for Economic Studies (2008)	Gambling on insurance and financial services	None	No impact	3/4
Williams, Belanger, and Arthur (2011)	Gambling on reading and education	None	No impact	3/4

Research, 2000; Taylor et al., 2000); of these, the study by Andersen (1997) was industry funded. Two studies (MacDonald et al, 2004; National Institute of Economic and Industry Research, 2000) analysed household spending in which restaurants located within gambling facilities were likely to be included in the figures. Many of the positive results therefore arise from methodological issues.

In line with the observation that gambling cannibalizes restaurants when it is directed at locals, two studies (Fenich & Hashimoto, 2004; Hashimoto & Fenich, 2003) concluded that casino gambling is complementary to the restaurant industry in locations that can be considered destination gambling or had little economic activity before the introduction of casinos. On the other hand, the study by Taylor et al. (2000) showed a slight positive relationship that varied depending on whether the casino was Native American run and whether it was close to a large market. In cases where casinos were introduced close to Native casinos, other restaurant earnings decreased. This finding suggests that although the restaurant and bar activity in destination gambling locations may be positively affected, this is not always the case.

Table 12  
*The Effect of Gambling on Transportation, Communication, and Public Utilities (TCPU)*

Reference	Studied sectors (gambling on industry)	Impact	Result	Quality
Farrigan (2005)	Casinos on TCPU	Negative	The introduction of casinos reduced TCPU by 36%.	2/4
Anders (1996)	Casinos (Native) on utilities (energy)	Positive	The theoretical model expects that the casino will benefit utilities, but is based on the assumption that gambling comes from outside the local economy.	0/4
Anders (1996)	Casinos (Native) on transportation	Positive	The theoretical model expects that the casino will benefit transportation, but is based on the assumption that gambling comes from outside the local economy.	0/4
Grinols and Omorov (1996)	Casinos on petrol stations	Positive	1,000 dollars spent on casinos equals average winnings in petrol stations + 295 USD.	3/4
Hamer (1982)	Casinos on TCPU	Positive	Compared with a model without casinos, casinos created more employment in transportation and public utilities.	2/4
Byron and Quiggin (1996)	Casinos on transport	None	The model shows that AUD 100 million spent on casino gambling would not significantly affect transport.	2/4
Byron and Quiggin (1996)	Casinos on energy	None	The model shows that AUD 100 million spent on casinos would not impact the energy sector.	2/4
South Australian Centre for Economic Studies (2008)	Gambling on communications	None	No impact	3/4
South Australian Centre for Economic Studies (2008)	Gambling on electricity, gas, and fuel	None	No impact	3/4
South Australian Centre for Economic Studies (2008)	Gambling on vehicles and transport	None	No impact	3/4

Table 13  
*The Effect of Gambling on Agriculture and Mining*

Reference	Studied sectors (gambling on industry)	Impact	Result	Quality
Farrigan (2005)	Casinos on agriculture and mining	Negative	The introduction of casinos reduced agriculture by 11% and mining by 100%.	2/4
Byron and Quiggin (1996)	Casinos on agriculture and mining	None	The model shows that AUD 100 million spent on casinos would not affect agriculture or mining.	2/4

For these reasons, the results suggest that convenience gambling appears to harm the restaurant and bar industries, whereas destination gambling may benefit them.

### **Hotel and Tourism Services**

Fifteen study observations in this review focused on the financial impacts of gambling on the hotel and tourism service industries (see Table 5). Results were again contradictory. Six studies reported no impact (Blue Thorn Research et al., 2007; Cotti, 2008; Hang & Penny, 2011; Hsu, 1998; Prybylski et al., 1998; South Australian Centre for Economic Studies, 2008). One study (Truitt, 1996) reported that the introduction of casinos benefitted tourism businesses in smaller towns, but not in larger towns.

Four studies reported financial harm on the hotel and tourism industry (Anders, 2002; Anders et al., 1998; Chhabra, 2008; Leven & Phares, 1997). These studies were again conducted in convenience gambling locations. The study by Anders (2002) concluded that the relationship is negative because gambling is directed at locals, whereas the study by Chhabra (2008) showed that in Iowa, the hotel and tourism sectors declined as a result of gambling, despite overall increases in tourism.

Four other studies showed that gambling financially benefits hotels and tourism services (Gerstein et al., 1999; Hamer, 1982; Marshall, 1998; Prevost, 2010). Some of these positive results stemmed from methodological issues. The study by Marshall (1998) showed that hotels profited from the introduction of EGMs in Australia mainly because EGMs are often located in hotels. EGMs have also not delivered on the promise of creating employment in the Australian hospitality sector. Despite claims by the Australian Hotel and Hospitality Association that every 2.6 EGMs located in hotels would create one additional job in the hotel sector, this does not appear to be the case, at least based on Marshall's (1998) study. Studies by Gerstein et al. (1999) and Prevost (2010) that showed a complementary relationship also likely included hotels located within casino facilities. As Prevost (2010) concluded, the hotel business only profited if it was close to casinos, whereas revenues of hotels in the larger surrounding area declined.

Table 14  
*The Effect of Gambling on Services and Unspecified Local Businesses*

Reference	Studied sectors (gambling on industry)	Impact	Result	Quality
Byron and Quiggin (1996)	Casinos on services	Negative	The model shows that AUD 100 million spent on casino gambling would reduce output of community services by 1.9%.	2/4
Marshall (1998)	EGMs on unspecified small businesses	Negative	Respondents reported declines in business turnover, possibly due to the introduction of EGMs. Only hotels reported increased profitability, partly because EGMs are located in hotels.	0/4
Anders (1996)	Casinos (Native) on services	Positive	The theoretical model expects that the casino will benefit services but is based on the assumption that gambling comes from outside the local economy.	0/4
Farrigan (2005)	Casinos on services	Positive	The introduction of casinos increased services by 9319% (includes the casino sector), as economic activity in Tunica was negligible before the casino.	2/4
Garrett (2004)	Casinos on services	Positive	Comparison of employment levels in counties before and after the introduction of casinos shows a positive effect on services (not including the casino).	2/4
Goss and Morse (2004)	Casinos on other industries	Positive	The business bankruptcy rates in casino counties is 35.4% lower than in non-casino counties.	4/4
Hamer (1982)	Casinos on services	Positive	Compared with a model without casinos, casinos created more employment in services.	2/4
Rephann et al. (1997)	Casinos on services	Positive	The service sector in casino communities grew 100 percentage points faster than it did in non-casino communities, but this derives mainly from the casinos.	4/4
Andrews (2007)	Casinos (native) on other industries	None	No significant impact on Non-Native American government revenue within a 50-mile radius of an Native American casino.	
Siegel and Anders (1999)	Casinos on personal services	None	No significant substitution found.	2/4
Williams, Belanger, and Arthur (2011)	Gambling on health care and personal care	None	No impact.	3/4
Williams, Belanger, and Arthur (2011)	Casinos on local businesses	None	Number of other businesses increased by 5.7% subsequent to casino introduction, compared with 2.2% in the control periods, but the difference was not statistically significant.	3/4
Wan (2012)	Casinos on local businesses	Both	Casinos have increased the customer base of local business owners, as well as rent, making expenses higher.	0/4
Zheng and Hung (2012)	Casinos on local businesses	Both	After casinos were introduced in 2002, the number of companies that dissolved increased from 90 in 2001 to 254 in 2006 and 459 in 2009. However, in the same period, new business starts also increased.	2/4

*Note.* EGM = electronic gambling machine.



These results suggest that gambling benefits the hotel and tourism sectors mainly if services provided by gambling facilities are included in these figures. Of the studies that did not include gambling facilities, observations of convenience gambling locations showed an overall negative impact on tourism services. Gambling may also impact tourism negatively in destination gambling locations, with the exception of tourism services adjoining the casino facility.

### **Retail and Merchandise**

The impacts of gambling on the retail and merchandise sectors were considered in 24 study observations (see Table 6). Results were again split. Three studies reported no impact (Siegel & Anders, 1999; South Australian Centre for Economic Studies, 2008; Williams, Belanger, & Arthur, 2011). Twelve studies observed that gambling financially harmed retail or merchandise sectors (Ackerman, 1997; Anders, 2002; Anders et al., 1998; Blevins & Jensen, 1998; Byron & Quiggin, 1996; Garrett, 2004; Grinols & Omorov, 1996; Hicks, 2003; Leven & Phares, 1997; National Institute of Economic and Industry Research, 2000; Snyder, 1999; Taylor et al., 2000). The studies showed that the introduction of gambling seems to have decreased average spending on retail purchases, as well as tax income from the retail sector. The impact appeared to be even larger when gambling was directed at locals (Grinols & Omorov, 1996; Taylor et al., 2000). Most of the negative observations were related to convenience-type gambling or measured impacts on local consumption (Ackerman, 1997, Anders, 2002, Byron & Quiggin, 1996; Garrett, 2004; Grinols & Omorov, 1996; National Institute of Economic and Industry Research, 2000). Some observations also suggested that destination gambling may harm the retail and merchandise industries (Blevins & Jensen, 1998; Snyder, 1999; Taylor et al., 2000). According to Grinols and Omorov (1996), although retail sales within a 5-mile radius from a casino increased, sales in the 5- to 10-mile radius from a casino decreased. This finding implies that although destination gambling may bring positive effects to the retail sector close to or adjoining a casino, these effects are superseded by negative financial impacts in the wider local area. Casinos also seem to replace consumption in a wide range of goods rather than in one specific category.

Nine studies observed a positive relationship between gambling and the retail sector (Anders, 1996; Andersen, 1997; Cartee & Gordon, 1997; Farrigan, 2005; Hamer, 1982; Hann & Nuffield, 2005; Hsu, 1998; Rephann et al., 1997; Taylor et al., 2000). Some of these results were again tainted by methodological issues. The study by Andersen (1997) was industry funded, whereas those by Anders (1996) and Hamer (1982) were based on theoretical models rather than on empirical data. The studies by Hsu (1998) and Hann and Nuffield (2005) reported that positive impacts were lower than expected, whereas Farrigan (2005) reported that positive impacts were due to low baseline levels of economic activity in the area before the casino was introduced.

These results suggest that gambling has a largely negative impact on the retail and merchandise sectors in the case of convenience gambling. Gambling may have a

positive impact on retail and merchandise in destination gambling locations, but only in economically depressed small towns; even in these cases, the economic boost is not as important as expected.

### **Alcohol, Tobacco, and Drugs**

Excessive gambling has been linked to both alcohol and tobacco use in previous studies (see Sulkunen et al., 2019). Research has also shown that nicotine dependence and alcoholism are comorbid disorders with problem gambling (Cowlshaw et al., 2017). The impacts of gambling on these other so-called coercive commodities (Young & Markham, 2017) have nonetheless been assessed in only five study observations (National Institute of Economic and Industry Research, 2000; Sims, 2017; South Australian Centre for Economic Studies, 2008; Williams, Belanger, & Arthur, 2011; see Table 7). Three of these studies showed no impact (Sims, 2017; South Australian Centre for Economic Studies, 2008 [on tobacco], Williams, Belanger, & Arthur, 2011), and two studies showed a positive relationship (National Institute of Economic and Industry Research, 2000; South Australian Centre for Economic Studies, 2008 [on alcohol]).

Although such a low number of observations does not allow one to draw definite conclusions, it is likely that gambling does increase the sale of alcohol, but this probably includes alcohol consumed at gambling venues. The positive observations were from convenience gambling locations and concern tobacco and alcohol.

### **Construction**

The effects of gambling on construction have been considered in seven studies (Anders, 1996; Andersen, 1997; Byron & Quiggin, 1996; Farrigan, 2005; Gerstein et al., 1999; Hamer, 1982; Rephann et al., 1997). Results of these studies showed an overall positive impact (see Table 8). In only one study, based on a theoretical model, was the impact on construction negative (Byron & Quiggin, 1996). Overall, the introduction of casinos appears to be beneficial to the construction industry, although this is likely to include the construction of the casino facilities. The results were also skewed by the fact that most study observations focused on destination gambling localities (Anders, 1996; Farrigan, 2005; Hamer, 1982) or also included destination gambling localities in the data (Gerstein et al., 1999; Rephann et al., 1997). As also observed by Farrigan (2005), numbers were inflated in areas with little baseline economic activity prior to the casinos because of the necessary construction of casino premises and adjoining services. The construction of casinos is nevertheless a one-time effort and gambling is unlikely to have a lasting positive impact on construction in the community. However, more longitudinal studies are needed to confirm this assumption.

### **Manufacturing**

As a service-based industry, gambling may harm traditional manufacturing industries. This relationship was considered in six studies (Byron & Quiggin, 1996;

Farrigan, 2005; Garrett, 2004; Grinols & Omorov, 1996; Hamer, 1982; Mieirol et al., 2012; see Table 9). Three of these studies found that gambling had a negative impact on manufacturing (Byron & Quiggin, 1996; Garrett, 2004; Mieirol et al., 2012). A study by Grinols and Omorov (1996) found that the introduction of gambling had no impact on manufacturing, while Hamer (1982) found contradictory results. Only the study by Farrigan (2005) found a positive impact on manufacturing in Tunica County (Mississippi, USA). This increase was attributed to limited economic activity in the area prior to the introduction of casinos. In comparison, studies from other destination gambling communities with more important economic development prior to the casinos (Garrett, 2004; Mieirol et al., 2012) found in these cases that the introduction of gambling was linked to declines in manufacturing. The only study that considered the impacts on manufacturing in a convenience gambling environment (Byron & Quiggin, 1996) was based on theoretical modelling rather than empirical data.

Overall, the results appear to indicate that gambling is connected to declines in manufacturing industries, with the exception of the Tunica County case. However, this decline is not necessarily a result of gambling per se, but rather a more general economic shift from traditional production-based economies towards service industries.

### **Housing and Household Expenses**

Household expenditure surveys have shown that gambling consumption comes mainly at the expense of housing and household expenditures (e.g., Boreham & Dickerson, 1996; Kearney, 2005; Rataemane & Ligthelm, 2003). Seven study observations from three different studies (see Table 10) considered the impacts of gambling on household expenses (Kearney, 2005; South Australian Centre for Economic Studies, 2008; Williams, Belanger, & Arthur, 2011). Five observations showed no impact (South Australian Centre for Economic Studies, 2008 [on dwelling, on furnishing and household equipment]; Williams, Belanger, & Arthur, 2011 [on dwelling, on furnishing and household equipment, on food and non-alcoholic beverages]); one study found a negative impact (Kearney, 2005), and another study observation found a positive impact (South Australian Centre for Economic Studies, 2008 [on food and non-alcoholic beverages]).

As an exception to most other industry categories considered in this review, these studies mainly focused on recreational gambling. Although evidence is limited, the results indicate that recreational gambling is likely to have little impact on housing and household expenses and that this is also likely to be true for destination gambling. However, this finding needs to be verified in further studies.

### **Finance, Insurance, and Real Estate (FIRE) and Education**

Six study observations focused on the impacts of gambling on the FIRE industries or communications and education sectors (Anders, 1996; Farrigan, 2005; Hamer, 1982;

Rephann et al., 1997; South Australian Centre for Economic Studies, 2008; Williams, Belanger, & Arthur, 2011; see Table 11). Three of five observations regarding the FIRE industries (Anders, 1996; Farrigan, 2005; Rephann et al., 1997) reported that gambling benefits these sectors. This result was nevertheless true of only destination gambling. The studies showed that for the FIRE industries to benefit from gambling, baseline economic activity needs to be low in the area (Farrigan, 2005), or the casino needs to be directed at tourists (Anders, 1996). The study by Hamer (1982) found a negative relationship, but this study was based on a theoretical model. The studies also did not specify whether the economic activity of the FIRE industries increased because of the needs of the casino industry or because of other economic growth.

Only one observation measured the effects of more recreational-type gambling (South Australian Centre for Economic Studies, 2008) and showed no impact. Overall, the impacts of gambling on FIRE therefore appeared to be mainly positive in the case of destination gambling, whereas the presence of recreational gambling was likely to have little impact on these industries. Further studies are needed, however, to verify this result.

The observation regarding the education sector showed no impact (Williams, Belanger, & Arthur, 2011).

### **Transportation, Communication, and Public Utilities (TCPU)**

The impacts of gambling on the TCPU industries were considered in 10 study observations (Anders, 1996; Byron & Quiggin, 1996; Farrigan, 2005; Grinols & Omorov, 1996; Hamer, 1982; South Australian Centre for Economic Studies, 2008; see Table 12). The results of these studies were highly split.

Five observations from two studies found that gambling had no impact on the TCPU sectors (Byron & Quiggin, 1996; South Australian Centre for Economic Studies, 2008), and four observations found a positive impact (Anders, 1996; Grinols & Omorov, 1996; Hamer, 1982). The dividing line appears to be whether studies considered destination or recreational gambling. Studies conducted on recreational gambling contexts showed no impact. The studies showing a positive impact focused on destination gambling but, of these, three observations were based on theoretical modelling with no real data (Anders, 1996; Hamer, 1982) and one found only that the business of petrol stations increased following the introduction of a casino (Grinols & Omorov, 1996). On the other hand, the study by Farrigan (2005) found that casinos decreased the TCPU industries in Tunica County. Some weight can be given to this result because economic activity in Tunica was negligible before the introduction of casinos and most other economic sectors experienced notable growth in the area.

From these results, the impacts of gambling on TCPU (save for petrol stations) appear to be mixed. Recreational gambling does not appear to have much impact on these industries, but the studies included in this review cannot establish conclusively how destination gambling affects the TCPU industries. More research is therefore needed on the topic.

### **Agriculture and Mining**

Similar to manufacturing, agriculture and mining can be considered economic sectors that may decline when service-based industries grow. Nevertheless, only two studies have considered the effects of gambling on these sectors (Byron & Quiggin, 1996; Farrigan, 2005; see Table 13). The study by Byron and Quiggin (1996) was based on theoretical modelling and showed no impact, whereas Farrigan (2005) found that the introduction of casinos in Tunica County reduced both agriculture and mining. This observation is important because, overall, most sectors in Tunica benefitted from the introduction of casinos. Although more research is required, gambling is likely to negatively affect the agriculture and mining sectors, but this result may also be a consequence of larger economic processes in society than the mere introduction of gambling.

### **Services and Unspecified Local Businesses**

Finally, eight study observations focused on the relationship between gambling and services (Anders, 1996; Andrews, 2007; Byron & Quiggin, 1996; Farrigan, 2005; Garrett, 2004; Hamer, 1982; Rephann et al., 1997; Siegel & Anders, 1999; Williams, Belanger, & Arthur, 2011 [on health care and personal care]) and an additional five on unspecified other businesses (Goss & Morse, 2004; Marshall, 1998; Wan, 2012; Williams, Belanger, & Arthur, 2011 [on local businesses]; Zheng & Hung, 2012; see Table 14).

Regarding services, five studies showed a positive relationship between gambling and the sector (Anders, 1996; Farrigan, 2005; Garrett, 2004; Hamer, 1982, Rephann et al., 1997). Although two of these studies (Anders, 1996; Hamer, 1982) were based on a theoretical model and the study by Farrigan (2005) included services provided by the gambling industry, observations by Garrett (2004) and Rephann et al. (1997) indicated that gambling benefitted the service sector even when gambling services were not included. However, both of these positive findings came from destination casino contexts. There are no studies available regarding the impacts of recreational gambling on services generally.

Studies on other unspecified businesses focused mainly on the impacts of casinos on other local small businesses. Results of these studies were mixed, possibly reflecting the fact that the economic sectors were not detailed in these studies. The study by Goss and Morse (2004) considered the impacts of destination casinos on local business and found a positive impact, whereas studies from Macau reported both positive and negative impacts (Wan, 2012; Zheng & Hung, 2012). Two studies also considered recreational gambling. The study by Marshall (1998) from Australia showed that local businesses reported declines in business turnover following the introduction of EGM gambling. The studies by Williams, Belanger, and Arthur (2011) and Andrews (2007) showed no statistically significant impact.

From these data, destination gambling appears to benefit both services and other unspecified local businesses. Regarding recreational gambling, local businesses

appear to decline as a result of gambling, but no studies were available to indicate whether this is also true of services.

### Discussion

The results of this study imply that overall, the introduction of gambling appears to increase economic activity in communities in comparison to that at baseline levels, particularly if gambling is included in these calculations. These increases are the most dramatic in small locations with little economic activity beforehand. Gambling does cannibalize other industries, but this substitution is not complete. The impacts nevertheless differ between sectors. The results of the current review partly support the findings by Siegel and Anders (1999) that gambling mostly harms its closest consumer substitutes, such as other recreation and entertainment. However, gambling appears to harm more traditional industries such as manufacturing and agriculture industries even more. These impacts are nevertheless likely to result from wider societal processes in which service industries are replacing traditional industries, rather than from gambling alone.

The overall economic benefits of gambling for local industries should nonetheless not be taken at face value, as even in cases where positive impacts were observed, the results appear to depend strongly on industry conditions, locations, and methodological issues regarding how the impacts were measured.

Industry conditions such as the type and size of the gambling establishment appear to have an impact on whether gambling harms or benefits other sectors. Positive relationships have been found in particular in studies that focus on destination gambling. This finding is also in line with the previous reviews by Williams, Rehm, and Stevens (2011) and Rose (1998) that concluded that negative impacts are usually measured when patronage comes from the local area, whereas studies conducted on destination gambling locations tend to show more positive results. Although there is currently no research available on the topic, it is also likely that the impacts of online gambling on other industries differ from those observed for land-based gambling opportunities.

In the current review, most sectors appeared to benefit from gambling in destination gambling locations. Previous research has also shown that even if changes occur in local spending, this is offset by a recapture effect, in which increased visitation compensates for any cannibalization (Rose, 2001). Gambling that caters to the local market may not have net positive economic impacts and will negatively affect local businesses (also Brome, 2006). Although the necessity of exporting gambling to obtain economic benefits has also been contested (Phares et al., 1999; Walker, 1999), the results of this review indicate that convenience gambling directed at locals generates more financial harm to industries than does destination gambling. As many of the studies in this review were from small destination gambling locations, the results may therefore be skewed towards the positive.

The results also varied depending on types of location. As a rule, economic impacts tend to be more positive in small towns and rural areas, whereas the opposite is true of larger metropolitan markets (Farrigan, 2005; Marshall, 1998; Snyder, 1999). The results show that when impacts on other industries were positive, they were mainly concentrated in economically depressed areas or Native American or First Nations communities (Taylor et al., 2000; Williams, Rehm, & Stevens, 2011). Studies have suggested that Native American gambling operations are more successful if they are located relatively close to large population centres (Grinols, 2004b). However, when competition increases, the location benefits decrease. For example, the initially successful Foxwoods Resort Casino in Connecticut currently carries 1.9 billion dollars in “substantial” debt and has been obliged to reduce its workforce (Hallenback, 2019). Thus, the seemingly positive initial findings should be approached cautiously and evaluated critically during longer periods.

Another example is that of Tunica County. Tunica was the first small county in the United States to succeed in having important revenue from gambling. In 2006, casino revenue in Tunica reached 1.2 billion dollars and unemployment rates were low. However, these positive results on the economy were short-lived. With increasing competition and diminishing attractiveness of the Tunica casinos, thousands of casino jobs were lost, and many retail businesses closed as a result (Williams, 2019). Cross-sectional studies and short-term time series data cannot recognize such long-term variations in impacts, and many of the results obtained from Tunica in this review are long outdated. For this reason, not much weight was given to them in this analysis.

Besides the potential skew due to a wide representation of small destination gambling locations in the existing literature, other methodological issues may also have influenced the results. This may have particularly been the case when gambling was included in the type of economic activity considered in studies that examined the economic impacts of introducing gambling on entertainment, tourism businesses, alcohol consumption, and construction. If gambling was part of these figures, they were likely to be inflated for this reason. For example, in Australia, hotels host EGM gambling, whereas in the United States, some hotels adjoin casino facilities.

Despite these issues in interpreting the results, the review nevertheless shows that even in cases when gambling does cannibalize other industries, this process is not complete. This finding is in line with a previous review on cannibalization between gambling industries, which showed that instead of fully substituting for existing games, new gambling opportunities tend to grow the aggregate market (Marionneau & Nikkinen, 2017). If we accept that gambling does not cannibalize existing businesses completely, where does the money come from? We can identify at least three different processes by which this is possible.

First, the introduction of gambling could increase personal income levels in a community, leading to more available resources for gambling. The analysis of the socio-economic impacts of gambling by Williams, Rehm, and Stevens (2011) found that personal income had increased because of gambling, particularly in Native

American communities, but impacts seem to be local. Studies that have considered wider geographic areas found no impact after the introduction of gambling. Gambling does not appear to produce wealth, but when it does, the benefits are often exported to investors outside of the community (Grinols, 1995; Mallach, 2010; Sims, 2017).

Second, gambling may also substitute for other consumption that has not been considered in this review. Household expenditure surveys have indicated that the extra spending on gambling comes mainly from household expenditure and savings (Ahaibwe et al., 2016; Boreham & Dickerson, 1996; Hann & Nuffield, 2005; Rataemane & Ligthelm, 2003). For instance, in Australia, the average amount spent on gambling measured as a percentage of disposable income rose from 1.6% in 1989–1990 to 2.1% in 2014–2015. In Italy, gambling expenditure almost tripled in a decade between 2006 and 2016, but disposable income decreased at the same time by 7%, indicating that those who gamble are consuming their savings, acquiring debt, or using assets other than their own (Salzano, 2017). This is problematic because studies applying the total consumption model have found that increased participation in gambling on a population level is directly linked to increased gambling problems (especially in low-income households; Grun & McKeigue, 2000; see also Sulkunen et al., 2019). For example, evidence from Australia (Markham et al., 2014) showed that the prevalence of problem gambling (measured on the Problem Gambling Severity Index) doubled from 9% to 18%, with an increase in monthly EGM expenditure from 10 to 150 AUD per adult. Similar results have been obtained in studies that measured the impact of availability of gambling on problem levels among adults and adolescents (Kristiansen & Trajeberg, 2017; Wardle, 2016; Welte et al., 2016). This “addiction surplus” created by increased problem gambling (Young & Markham, 2017) suggests that, at least partially, the increased consumption on gambling comes from other consumption and savings. Spending on gambling is heavily concentrated in a small minority, more so than spending on products that lack addictive potential (Fiedler et al., 2019).

Third, it is also possible and likely that gambling displaces spending from other industries more than the results of these studies would suggest. The potential skew in results may stem from the fact that small destination gambling localities are overrepresented in studies. Economic benefits are directed to a small locality at the expense of the larger region or adjoining regions (Prevost, 2010; Thompson & Gazel, 1996). Cannibalization effects may also be influenced by temporal factors. The economic benefits of casinos diminish over time, either due to competition from other gambling providers (see Marionneau & Nikkinen, 2017; Walker & Jackson, 2007), or because the positive effect on the economy gradually wears off. Results may also vary depending on what a social cost is considered to be. Studies on market cannibalization consider only financial transfers, without considering other costs related to regulation, treatment of problem gamblers, and crime, as well as personal distress, family disruption, or reduced levels of social well-being (Grinols, 2004a; Nikkinen & Marionneau, 2014; Orford, 2011). These effects could not be fully captured in the current review and require more research.



The calculations also do not consider the possibility that if gambling had not been introduced, something else might have been. Although gambling does provide leisure value to consumers, its potential to generate economic welfare would be better measured by comparing casino communities with situations in which other business had been introduced instead (Walker, 2014). Furthermore, economic cost-benefit studies are not impact studies, and even if economic growth is observed, this does not necessarily translate to increases in well-being due to related increases in social costs (Grinols, 2004b). Other directions for further studies include considering the economic impacts of different types of gambling games, in particular online gambling, on other industries. The effects of gambling on state revenue will provide insight into whether gambling overall is as beneficial as suggested by the industry. Furthermore, it is important to follow the money flows from gambling to account for where the bulk of gambling spending comes from. Unfortunately, limited resources are currently available to achieve this. If players are not registered, their transactions cannot be followed (also Nikkinen, 2019). For the time being, researchers have to rely on self-reporting and interviews, which do not always provide accurate information about consumption patterns, especially if they are not conducted in gambling venues.

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For correspondence: Virve Marionneau, PhD, Centre for Research on Addiction, Control and Governance (CEACG), Faculty of Social Sciences, University of Helsinki, PO Box 9 (Siltavuorenpenger 1 A), 00014 University of Helsinki, Finland. E-mail: [virve.marionneau@helsinki.fi](mailto:virve.marionneau@helsinki.fi)

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