# William R. Eadington and the Economics of Gambling

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"If I have seen further it is by standing on ye shoulders of Giants"

--Isaac Newton

#### Introduction

As any reader of this *Journal* knows, gambling research is a relatively young field. The economics of gambling (or gaming), as a sub-field, has really taken off only since the

early 1990s, when casinos began expanding outside of Nevada and Atlantic City. Since then, the literature has grown dramatically, to include numerous articles in mainstream economics journals, as well as the introduction of new journals dedicated to gambling research. As the gaming industry has grown worldwide, the increased availability of data has provided a vastly expanded menu of available research topics in economics.

Modern gambling research, whether on the psychology or economics of gambling, can perhaps trace its roots back to the 1st National (later International) Conference on Gambling and Risk-Taking, organized by Bill Eadington at the University of Nevada, Reno, and held in Las Vegas in 1974. At that time, only 12 states had lotteries (Clotfelter and Cook 1991), and commercial casinos operated only in Nevada. There was virtually no published literature in economics on the gambling industry, although there had been some papers published on risk-taking and gambling behavior (e.g., Friedman and Savage, 1948).

It is fair to say that Bill almost single-handedly created the "economics of gambling" field. The importance of his International Conference on Gambling and Risk-Taking series in the development of this research field cannot be overstated. Bill brought together researchers from different disciplines and countries who could discuss and debate various facets of gambling. Economists who study in this area have a natural appreciation for other disciplines such as sociology, psychology, public administration, and law (among others), because gambling research is, by its nature, interdisciplinary. At one point, this aspect of gambling research made it more difficult to publish in economics journals. More recently, because of the importance of the industry, and because of the increased visibility of good gambling research, it is now easier to publish work on gambling in mainstream economics journals.

As explained by Eadington (2003, p. 204), at the time of the 1st National Conference, the gambling industry had a "nefarious reputation and checkered past." Eadington and others who were doing research on either the gambling industry or gambling behavior were probably viewed as being far outside the mainstream, in terms of their choice of

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research focus. Indeed, even choosing gambling as a research focus into the late 1980s and early 1990s might have been seen as a very risky career choice. However, Bill's choice to focus his academic career on gambling has had an enormously positive impact on countless other researchers (including us), and on public policy throughout the world.

Other papers in this issue discuss the conference series. In this paper, we focus on Bill Eadington's contributions to the gambling research field, in general, and to economists' understanding of the gambling industry and gambling behavior, in particular. ... choosing

#### Overview of Eadington's Research

During the past fifty years or so, economic research has grown extremely technical. The most prestigious journals often publish papers that have few words – they are more mathematical expositions, full of equations, Greek letters, lemmas and proofs. Critics of the profession (including many people in the profession) have argued that this technical direction of economic research is to our discipline's detriment because it further removes economics from reality. Although Bill's undergraduate degree was in mathematics, and his career as an economist began at a time when the economics profession was beginning to move in a more technical direction, his pioneering work on the economics of gambling has always retained an applied and pragmatic approach. His papers have often been geared at addressing or guiding public

policy concerns. In this respect, Bill's work has arguably made a much greater impact than the great majority of published papers in economics.

Going back to 1975, Bill has authored, co-authored, or edited over 100 articles, books, book chapters, and conference proceedings. Several books have been produced from his conference series, and he has published in a wide variety of journals, including the *Journal of Gambling Studies, International Gambling Studies, the Journal of Gambling Business and Economics, the UNLV Gaming Research & Review Journal, Annals of Tourism Research, the Journal of Travel Research,* and the *Journal of Economic Perspectives*, to name a few. Having published so much, Bill has obviously made enormous contributions to the literature. His papers have had a significant influence on the direction of gambling research to this point, and will continue to impact research in this area.

Although much of the economics profession focuses on analyzing data from the past, relatively little of Bill's research has done this. Rather, he has focused on current issues – his research has always been *timely*. Bill keeps current on the issues that are shaping the gambling industry around the world, and his papers typically offer key insights about issues that should be considered by policymakers. Other researchers have benefited from this work because it set a foundation for them upon which to build. In this way, Bill has, more than anyone else in this area, shaped the direction of research. Overall, his research and service work in this area has led us to where the gambling research field stands today. It has grown dramatically during the past few decades, and no one deserves more credit for that than Bill Eadington.

In the following sections we discuss specific issues about which Bill has written during his career. Our discussion is not exhaustive; rather, we discuss a selected few of Bill's key contributions to the literature.

# **Principles of the Economics of Gaming**

Eadington's 1999 paper in the Journal of Economic Perspectives, a top-tier journal

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That is not to say his work avoided these methods, consider for example Cargill and Eadington (1978), which was the first study to apply time series and explanatory regression modeling techniques to forecast macroeconomic gaming data.

where articles are by invitation only and are designed to bridge the research world with policy and popular thinking, may be considered a seminal work in economics. The fact that Bill was asked to write the paper for the 1999 volume of the *Journal* is an indication of his reputation in the field and the importance of the gaming industry as an economic/

policy issue.

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Eadington (1999) was the first major piece of academic work to formally outline evidence of many fundamental economic principles in casino-style gaming, which is quite important as the gaming market has characteristics that are quite different from typical markets. For example, he provides context for how price sensitivity may be present in this market, despite prices not being directly observable to consumers in many cases, and despite actual price paid (out of pocket spending) differing from the expected price (house advantage). As an exercise in economic thought, he provides examples of how general consumer theory may continue to hold in the absence of clear pricing structures, providing evidence for this, such as:

Regular and local players play more frequently than tourists, and probably share their experiences more than tourists, and as a result are more price sensitive. Thus, the house advantage tends to be lower for slot machines for casinos that cater to local players than for those that cater to tourists. (p. 181)

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American roulette is approximately twice as expensive to play as European roulette. Because of this, roulette is a fairly minor table game in the United States; in Nevada it generated only 8.3 percent of the table game win in 1998. However, in other countries, roulette is often the dominant revenue generator among table games. (p. 181)

Similarly, he provides some evidence for the effect of a competitive market on prices, by comparing the average house advantage in the near perfect competition market in Nevada to the oligopoly in Atlantic City, noting that is it much lower in Nevada overall. He further notes high-end players' sensitivity to price is especially evident, as written in Eadington (1999):

Casinos compete most significantly over internal policies like maximum limits that such top-end players are permitted to wager, credit facilities, advanced deposit requirements, and the handling of cash. Moreover, casinos often provide discounts to these customers by offering rebates on losses and commissions paid on handle. (p. 180)

Eadington (1999) provided a framework from which to understand how different forms of gaming (e.g. Electronic Gaming Machines vs. destination resort casinos) will differently affect job creation, tourism, and consumer demand. In particular, he was the

first author to clearly describe the economic policy implications of choosing one form of casino-style gaming over another. He outlined the variation in outcomes from urban casinos, destination resort casinos, or widespread placement of gaming machines (e.g.

video lottery terminals, pokies, or EGMs). For example, Bill describes how widespread gaming machines may more effectively satiate local demand for gaming and generate tax revenue due to their ubiquity, but that they offer considerably less benefit in terms of economic impact and job creation, as compared to a destination resort casino (that will draw patrons from outside the area, and thereby bring tourism export dollars into the local economy). These considerations now tend to dominate policy conversations during the expansion of gaming.

In addition, much in the way that the "new era of responsible gambling," largely based on the "Reno model" (Blaszczynski, Ladouceur, and Shaffer, 2004), has forced scientists to re-evaluate past research of the effect of gaming expansion on problem gambling, Bill's thoughts on the effects of integrated-resort casinos suggested a need to re-explore past research on the economic impact of casinos. In Eadington (1999), and later work such as Eadington (2009), he notes that these new gaming venues generate considerably more jobs, economic development and exports than urban casino-only complexes. This is due in part to their non-gaming amenities providing a direct impact, but is also related to their combined effects as a tourism draw to the region.

Indeed, some empirical evidence of the positive effects of resort casinos that Bill first described is beginning to emerge. In a study of U.S. casinos, Cotti (2008) found,

Some related industries see an increase in employment, which could be indicative that these firms benefit from some complementary demand, maybe through increased tourism etc." (p.39).

Similarly, in the Mississippi market (which has several resortstyle casinos), Hashimoto and Fenich (2003) found that activity of the local food and beverage industry increased following the development of casinos, including rises in the number of business and employment – these figures excluded food and beverage activity within the casino, and therefore represent incremental effects outside of the property.

In an important paper for both economists and non-economists to understand economic motivations for the consumption of gambling services, Eadington (1987) provided a survey of the various consumer behavior models of the gambler. In this study, Bill discussed various wealth motivations for rational-behaving consumers (based on work by Brenner, 1983, 1985; and Friedman & Savage, 1948), as well as entertainment motivations (based on

work by Eadington, 1973, 1975; and Tsukahara & Brumm, 1976). That is, an explanation is carefully provided of how consumers could be motivated by a desire to increase their overall level of wealth through gambling, or that their motivation may simply be playing as a form of recreation. In his description, he draws distinctions between different forms of gaming with respect to the applicability of various theories, for example:

Lotteries which have low intrinsic entertainment value but very large prizes relative to the cost of participation are the ideal wealth motive gambles. Fixed odds games with even money pay-offs, on the other hand, are more likely to attract entertainment motivated players than wealth seekers.

He later provides an interesting theoretical explanation of how even "normal" (i.e. non-pathological) gamblers will tend to over-indulge in gaming at casino resorts, expanding on thoughts from Eadington (1975). To paraphrase, he explains that individuals gambling for entertainment may allocate a time and money budget to each casino visit. If the consumer initially loses less than expected, the consumer may then

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re-evaluate the budget and allocate more spending to both gaming and non-gaming activities. If the consumer loses more than expected, he may re-evaluate his budget to account for the void of activities to perform in the time period previously allocated to the

visit. Overall then, gamblers will tend to spend more than expected at the outset of a "casino visit."

Much of the work by Bill and his co-authors has influenced public policy, but many contributions have also been reflective of the development of gaming in different jurisdictions, and how this has shaped current policies. These articles are unparalleled in the literature in their ability to describe the political economy of many different gaming markets at many different points in history.

Although we have provided only a few different ideas of Bill's, they have demonstrated the variety of issues he has discussed in journal articles. Of course, many other authors have touched on similar themes as Bill, but few have done so with such clarity and such an eye for pragmatism. Other researchers are building on this work; in many cases they try to find data and develop ways to test some of the issues first outlined by Bill.

### **Political Economy and Gaming History**

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The earliest example of this work in peer-reviewed journals is Eadington (1984), which provided a chronological explanation of the political economy of casino gaming in the US, beginning with the early "monopoly" on casino gaming by Nevada from

1931 to 1978, and ending with the (then) present day when casino gaming was beginning to expand to other states. Eadington (1984) provided many projections that proved to be quite accurate, and offered insight that remains relevant in today's political economy. For example:

Since many of the social concerns related to the legalization of casino gambling in new jurisdictions are related to the absolute size of the proposed industry, it is likely that as new jurisdictions consider legalizing casino gaming, they will consider the restricted-size approach, rather than follow the Nevada or New Jersey models.

However, the major arguments in support of the legalization of casinos in a particular jurisdiction are usually linked to the potential economic benefits to be derived, and these benefits are greater if the industry is larger. (p. 34)

Since 1984, we have observed that many of the states to adopt casino-style gaming have done so using a market structure model that limited the number of casino licenses. We also continue to observe that a key variable in determining the expansion of gaming (of any form) is the presence of fiscal weakness, where the economic benefits of expansion become more politically meaningful (e.g. Calcagno, Walker, & Jackson, 2010; Coughlin et al. 2006; Davis et al. 1992; Erekson et al. 1999; Winn & Whieker, 1989).

Bill has also written on jurisdictions outside of North America. In a series of historic case studies of the Australian gaming market, each focusing on a different form of gaming, McMillen and Eadington (1986) described the series of policy decisions and their associated outcomes that led to the market structure at that time. Like the analysis in Eadington (1984), this study provided context for how the political economy shaped the (then) present day gaming economy. Similarly, Eadington and Siu (2007) examine the historic development of the Macao casino industry. The authors described the conditions

This is something Bill also does extensively in his speaking and consulting engagements. However, we are not focusing our discussion on those contributions.

under which adopting a loosely enforced regulatory structure in the early years of the Macao gaming market may have been an optimal design to generate more economic rents for both operators and regulators/government. In this rapidly evolving Macao gaming market, future demand was uncertain. By adopting a loose regulatory design (unlike what prevailed elsewhere in the region and in ruling Portugal), both government and operators were more easily able to respond to changes in demand from external visitors. This made the system more effective at providing adequate supply than a strictly regulated design, despite oversight concerns.

In the pre-UIGEA era of online gaming, Eadington (2004) provided an early outlook of the future of the market, providing some insightful predictions based on straightforward economic analysis. He noted:

(The ease of entry and low marginal cost of online gambling) suggests another reason online gambling might not be popular from a policy perspective. Gambling is often legalized not for the possible benefits to consumers but for the economic rents that specific interests, especially governments, can capture... Economic rents through excise taxes on online gambling might be difficult for policymakers to achieve. There might be a tendency for regional or national governments to "price compete" on tax rates against one another. Thus, online gambling might correctly be considered an unreliable source of tax receipts, especially compared with site-specific forms of gambling, such as casinos or gaming devices located in bars and hotels.

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Indeed, online gambling is only now becoming legally adopted in some US jurisdictions, and this study pre-dated what was then thought to be a surprising passage of the Unlawful Internet Gaming Enforcement Act (UIGEA) of 2006. After the Justice Department's 2011 change in interpretation of the Wire Act, the recent ability of the

US government to curb play on offshore sites through arrests of many of the largest sites' key operators (in April 2011) has most likely contributed to the high level of interest in obtaining Internet poker licenses in Nevada. Economic rents will not be as likely to be competed away as they would have been in a market open to unlicensed foreign sites with a first-mover advantage.

More recently, Eadington (2011a) explored the newest macro-level trends in the casino gaming industry and provided direction for future growth in the industry. Drawing upon experiences from past recessionary periods, Bill provided an outlook on the effect of the Great Recession (of 2007-09) on future gaming developments. He suggests that the fundamental changes in the outlook on the Las Vegas gaming market by both investors and lenders, along with the development of technological innovations in remote gaming, has fundamentally changed the mega-casino paradigm that prevailed for the past couple of decades in Las Vegas – the era of mega-casino expansion is over. He further contends that this impact will extend beyond Las Vegas, to the rest of the US and in Europe, albeit to a lesser extent. Given Bill's accuracy with past prognostications, it seems likely that these potential impacts may also come to fruition.

Finally, his 2011 article in this journal provided a detailed economic obituary for his adopted hometown of Reno (Eadington, 2011b). In the article that he was perhaps destined to write, Bill explored the decisions that Reno made and the structural shifts that were imposed upon Reno, all of which led to its demise as a gaming locale.

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that were imposed upon Reno, all of which led to its demise as a gaming locale. Most poignantly, he concluded with harsh assessments of the economic and development decisions that Nevada's policy leaders had made with regard to tax policy and education expenditures. In doing so, Bill sounded a haunting warning that he has been articulating since his arrival in the state and that proved especially prescient during the Great Recession – the state relies too heavily on a narrow tax base, and without diversification, the entire state may face the same fate as the gaming industry in his beloved Reno.

#### The Social Costs of Gambling

The social costs of gambling have been one of the most controversial aspects of legalizing gambling and of gambling research. Politicians and voters have a great concern about the potential social problems and costs associated with problem gambling. Similarly, most gambling research is at least tangentially related to social costs, for example, the prevalence and treatment of problem gambling, or the estimation of social costs.

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Two of Eadington's papers (1999; 2003) have made important contributions to the understanding of the social costs of problem gambling. In section 3, we discussed other aspects of Bill's 1999 paper. Here we focus on how social costs are addressed in that paper.

One of the keys to correctly thinking about social costs was pointed out in Eadington (1999) – the counterfactual. What would have otherwise happened? If casinos were not legal, would problem gamblers have been engaging in other harmful behaviors? Psychologists and other researchers have been focusing on this, and the issue is critical when considering the social costs attributable to problem gambling.

Eadington was among one of the first voices to clearly explain an important distinction of the gaming industry compared to most other "sin" goods or industries with negative externalities – that gaming is often introduced as an export good to other jurisdictions. That is, the home state is able to capture the economic rents from foreign state visitors, while exporting many of the negative externalities when the visitors return to their foreign homes. This changes the efficient strategy of the home state, and may lead to economically efficient proliferation of gaming, beyond that which

would be prescribed by a Pigovian tax design. As stated by Eadington (1999, pp. 186-187):

Historically, casinos have often been introduced to capture economic benefits from "exporting" casino gaming to customers from regions where the activity is prohibited. Jurisdictions that legalized casinos were often resource poor, or under economic duress. One or both of these factors apply to Monaco (1863), Nevada (1931), Macao (in the early 20th century), the Caribbean (1960s), and Atlantic City (1976).

Indeed, this exportation strategy may also help explain the emergence of small island nations – such as Antigua, the Isle of Man, and Alderney – as large suppliers of online gaming licenses and regulation.

Eadington (1999, p. 188) also points out one of the most complicating factors in understanding the costs associated with problem gambling is the separation from personal costs and social costs. Bill's paper concisely outlines the different contentious issues and provides a framework with which for economists and other researchers can analyze social costs. This issue has been debated at conferences and in the literature since the mid-1990s

(at least), still with no agreement among researchers.

In 2003, Bill's paper from the Whistler Symposium (held in 2000) was published. This paper is a very important contribution to the social cost literature because it clearly outlines the different types of concerns that politicians, voters, and researchers have with respect to problem gambling and the social costs attributable to them. The paper provides a review of the literature, discussing different economic frameworks. Again in this paper there is a major focus is on "internal" versus "external" (or social) costs.

Perhaps what most differentiates Bill's contributions in general, and the 2003 paper in particular, is that, although he clearly describes the complexities of the controversies in the literature, his writing is always geared at clarifying and simplifying the issues for his readers. This greatly increases the impact of Bill's work, because it is accessible to researchers from different disciplines.

As is the case with most of Bill's writing, it has an applied value. That is, after he discusses abstract issues of social cost definition and measurement, Bill explains a policy proposal that would begin to address the social cost issue in a real way. Although it was controversial at the time – and still would be if proposed by U.S. politicians – Eadington (2003) suggests adopting a "gambling license" system, whereby people would need to get a license to be able to gamble at casinos. Since most of the social costs of gambling are attributable to problem gamblers, these people could self-exclude themselves from casinos. Alternatively, family members or casinos could ban players. Finally, a player could lose their gambling license as a result of a court order (Eadington 2003, p. 209). The full implications of a licensing system are not known, but this is very good example

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of a licensing system are not known, but this is very good example of Bill's work. It provides tangible, workable suggestions for how to address policy issues or concerns. This is a much more important contribution than simply debating technical definition or measurement issues.

## Conclusion

In 2012, casinos are widespread across the US and around the world. Although researchers do not have a full understanding of the economic impacts of gambling, it is clear that our understanding in this field is where it is today largely because of Bill Eadington's contributions that began when casinos were fewer and far between. His influence was not only limited to his published research, but also to his conference series bringing together and promoting gambling research, his speaking, his consulting, and his other service activities.

Bill's writing is typically at the frontier of topics he chooses to address. This is because he is always in tune with what is happening in gambling research and policy, in the US and around the world. Because of this, Bill's research usually serves as a foundation for other economists who study different facets of the economics of gambling. Our own work has benefitted greatly from Bill's insights.

In this paper we have described but a few of the topics to which Bill has contributed to the literature, and have limited the scope of our survey to his peer-reviewed articles. It is clear that Bill has written on nearly all of the key policy issues that have emerged in gambling research over the past four decades, and in doing so has generously lent his "economic lens" to gambling researchers from all disciplines. When Bill first began researching the economics of gambling, it was far from a guaranteed career path for a young economist, but his body of work now serves as a "giant's shoulders" that we, and many other gambling researchers, stand upon.

Bill's work has usually been applied in nature, which has made it extraordinarily relevant for policymakers. Because of this, Bill has had a greater influence on gaming policy worldwide, probably, than any other individual researcher. This has been

confirmed, for example, by Bill's being inducted into the Gaming Hall of Fame in 2011, and twice being nominated for the Nevada System of Higher Education's Regents' Researcher Award.<sup>3</sup> As the authors of other papers in this issue can attest, we all owe an enormous debt to Bill Eadington for bringing gaming research to its current status.

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<sup>&</sup>lt;sup>3</sup> Bill was nominated for this year's award, the winner of which will be announced in spring 2013.

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