BENEFIT-COST ANALYSIS

Problems in Quantifying the Social Costs and Benefits of Gambling

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ABSTRACT. As casinos and other forms of gambling spread across the United States, voters and policymakers are becoming increasingly interested in the potential costs and benefits from expansion in gambling industries. Since the mid-1990s, a variety of cost-benefit research has been published, much of it using flawed methodologies. This paper examines some of the most important areas of debate and disagreement among gambling researchers, and explains why the quantification of the costs and benefits of gambling is problematic.

I

Introduction

THE GAMBLING LITERATURE includes research by psychologists, sociologist, economists, lawyers, and others. One area of interest to all of these researchers is how to quantify the costs and benefits of gambling. There is little agreement among researchers about the appropriate way to conceptualize and quantify the effects of gambling on society. Part of this disagreement is due to the different perspectives from which they approach the problem. Also, since the literature is still very young, one cannot expect agreement among all researchers. The gambling literature has a variety of problems, some of which I will discuss in this paper. It is important to understand these problems because a failure to consider them can lead to a misinterpretation of published cost-benefit analyses and misinformed policy prescriptions

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involving an important and growing industry. In addition, clarification on some issues is necessary before the literature can progress.

The paper is organized into four additional sections. Section II briefly discusses some of the different approaches to evaluating the costs and benefits of gambling and describes the potential benefits of adopting a single methodology for evaluating the economic and social effects of legalized gambling. In Section III, I examine some of the general problems with cost-benefit studies of gambling, with a focus on casinos. Also addressed are specific cost and benefit issues that have been particularly difficult for researchers to deal with. Section IV provides a detailed analysis and critique of a casino gambling social cost study. The purpose of this discussion is to describe the numerous potential problems with using cost-benefit analyses to inform policy toward gambling. Section V concludes the paper with a discussion of the extent to which gambling research should be used to inform policy decisions.

II

Different Approaches to Evaluating the Costs and Benefits of Gambling

COMMERCIAL CASINO GAMBLING began its spread across the United States in the early 1990s. As a result of the potential for economic benefits touted by the casino industry and politicians, interest in research on the casino and its industry began to rise, as demonstrated by hearings in the U.S. House of Representatives in 1994. At the hearings, a number of vocal anti-gambling advocates spoke. Some of these speakers have continued to publish studies on the economic effects of gambling during the last decade. Most notable among these is economist Earl Grinols. Even accounting for the published research, there is still remarkably little empirical evidence on how the casino industry affects the local, state, or national economy. In addition to economic studies on the topic, researchers from other fields have produced studies purporting to estimate the costs and/or benefits of legalized gambling and the related behaviors.

At the 1st International Symposium on the Economic and Social Impact of Gambling, researchers from a variety of disciplines and perspectives met to discuss the appropriate way to identify and

measure the socioeconomic effects of gambling. Little ground seems to have been made in terms of agreeing on the appropriate methodology. As Wynne and Shaffer (2003: 120) explain:

> While the ultimate goal of the Whistler Symposium was to derive "best practice guidelines" for conducting future gambling socioeconomic impact studies, participants rapidly realized this was an overly ambitious expectation that would not be achieved. Moreover, the Symposium experience showed that there was little consensus on (a) the most salient philosophical perspective, or conceptual framework, that should underpin research into the social and economic impacts of gambling; (b) definitions of private costs versus social costs attributable to gambling; (c) what costs and benefits should be counted in socioeconomic impact analyses; and (d) the best methods for measuring gambling benefits and costs.

The three major perspectives represented at Whistler were cost-of-illness (Single 2003), economic (Collins and Lapsley 2003; Eadington 2003; Walker 2003a), and public health (Korn, Gibbins, and Azmier 2003).[1] Each approach is briefly described below.

A. Cost of Illness

One popular mechanism for estimating the costs of problem gambling is based on cost-of-illness (COI) studies, which previously have been applied to alcohol and drug abuse. Single (2003) describes these generally, while Single et al. (2003: vi) provide a detailed explanation of the approach:

> The impact of substance abuse on the material welfare of a society is estimated by examining the social costs of treatment, prevention, research, law enforcement, and lost productivity plus some measure of the quality of life years lost, relative to a counterfactual scenario in which there is no substance abuse.

As Harwood, Fountain, and Livermore (1999: 631) explain:

> Underlying . . . COI [studies] is the premise that an illness or social problem imposes "costs" when resources are redirected as a result of that illness or problem from purposes to which they otherwise would have been devoted, including goods and services and productive time.

There are other approaches that are commonly associated with the COI approach. These include the "willingness to pay" and "demographic" approaches (Harwood, Fountain, and Livermore 1999).

The COI approach is useful because it has its foundation in alcohol and drug studies, so the application to problem gambling does not require a reinvention of the wheel. In addition, this approach has much in common with the "economic" perspective described below. For example, the issue of opportunity cost (or the counterfactual scenario) is important in both. They differ, though, in how they treat worker productivity and some types of expenditure.

Like the other approaches described below, COI studies are not without criticism (e.g., Reuter 1999; Kleiman 1999). As the name suggests, COI studies are focused on the costs, not the benefits, side of the equation.

B. Economic

The economic approach, as explained by Eadington (1999, 2003), Collins and Lapsley (2003), and Walker (2003a), shares much with COI studies. Indeed, many of the same "costs" appear in both perspectives. However, there are differences in what should be included as costs and how they should be measured. (Several examples of disagreement are highlighted below.) The economic approach is more general than the COI approach because it provides a framework for also classifying and measuring benefits.

The "economic" perspective is described by Walker and Barnett (1999: 185) as being concerned with the overall level of aggregate wealth in society. If an action decreases the overall amount of wealth, then it is a social cost. Importantly, "wealth" refers to well-being, not just material wealth.

This approach has been criticized by McGowan (1999) and Thompson, Gazel, and Rickman (1999), among others. Researchers have argued that the economic approach ignores certain negative effects of problem gambling (e.g., Hayward 2004: 4). However, many of the criticisms are unfounded because they are based on an assumption that "economic" implies "money measurement." This is more a description of accounting than economics. Most of this paper focuses on the economic perspective on gambling.

C. Public Health

The public health perspective is perhaps the most general of the three approaches introduced here. It is based on the Ottawa Charter (World Health Organization 1986), and it focuses on prevention, treatment, harm reduction, and quality of life. In terms of gambling, it focuses on how gambling can affect individuals, families, and communities (Korn and Shaffer 1999: 306).

The public health approach does not primarily focus on how to measure costs and benefits. Still, economic costs and benefits are an important component of the public health perspective. There are quality-of-life components that defy measurement, and it is important for these to be considered along with components that are easier to quantify. In this sense, the public health framework helps to show how the other approaches fit into the big picture.

While there are some areas of agreement among the different perspectives, there are also some significant differences. Each approach has its merits and limitations, and each implies a different approach to measuring the costs and benefits of gambling.

D. Potential for a Standardized Methodology

Legalized gambling provides benefits for consumers and, possibly, local economies. On the other hand, pathological or problem gamblers impose costs on society. But if a particular cost is "social" according to one research perspective but "private" from another perspective, adherents to one view may see the other perspective as ignoring significant social costs of gambling.[2] Gambling research would improve significantly if we could adopt a standardized methodology for identifying and measuring the costs and benefits of gambling.

Economists use the concept of gross domestic product (GDP), the dollar value of all goods and services produced in an economy during a year, to compare productivity and economic growth across countries and through time. Although it is not a perfect measure of well-being, it does provide a mechanism for comparisons. Psychologists use the DSM-IV for criteria to diagnose various types of problematic behavior, including pathological gambling. Having this standard is arguably

better than relying on individual therapists' subjective criteria. Similarly, a standardized methodology for quantifying the social costs and benefits of gambling would be beneficial.

Developing a standardized methodology would have at least three positive effects on research. First, it would allow researchers to more effectively contribute to the policy debate over gambling. Second, it would enable comparisons of costs and benefits across regions and through time. Third, it would provide a foundation by which the effectiveness of various pathological gambling treatment mechanisms could be tested. However, developing a single methodology is unlikely because of the vast number of problems that exist in the current, still developing, literature. Some of these issues are addressed in subsequent sections of this paper.

III

Problems in Cost-Benefit Analyses

SINCE GAMBLING RESEARCH is by its nature interdisciplinary, it is to be expected that different authors will approach the measurement of costs and benefits in different ways. For example, most economists are adherents to the concept of "consumer sovereignty." This is the assumption that the individual consumer knows better than other people what will make him or her the most well-off. The result of this is a more free-market attitude toward gambling and other goods than gambling researchers in other disciplines. Economists who take an advocacy position begin to see other potential roles for government, say, protecting consumers from bad choices. A sociologist may examine the same issues but have a predisposition for government control of markets. Psychologists may not spend much of their research effort on examining the appropriate role of government in a free society. Some aspects of disagreement in the literature are the natural result of differences in the academic disciplines.

Aside from discipline-specific influences that may be manifest in the literature, there have also been cases of blatantly biased research. Many of the early published studies were "advocacy" pieces, rather than scientific inquiries (Shaffer et al. 2001). The work by Goodman (1994, 1995), Grinols (1994, 1995, 2004), Grinols and Mustard (2001),

and Kindt (1994, 1995, 2001) are clear examples of advocacy. These authors are staunch anti-gambling activists, and their writing reflects this. For example, they fail to cite any literature that disagrees with their perspective or that might lead a reader to believe that there is debate on the issues (Eadington 2004; Walker 2007b). Anti-gambling advocates also typically include any "costs" that can be remotely linked to gambling, without giving justification. Importantly, some clearly biased research has shown up in very respectable outlets (e.g., Grinols and Mustard 2001, 2006; Grinols 2004; Kindt 2001). Much of the "early" (mid-1990s) research on the effects of gambling involved empirical estimates based on questionable methodologies.

On the other side of the ledger, many of the studies purporting to estimate the economic benefits from legalized gambling are simplistic and biased in their empirical models. Some of these are nothing more than guesswork. The casino industry, for example, has hired accounting firms to produce studies finding real benefits from legalized gambling (e.g., Arthur Anderson 1997). There has not been as much research effort on the benefits as there has been on the costs of gambling.

A. Critiques of Research Quality

Questions about research quality/legitimacy have been raised in comprehensive analyses (Australian Productivity Commission (APC) 1999; National Gambling Impact Study Commission (NGISC) 1999; National Research Council (NRC) 1999: chap. 5), as well as in more narrow critiques (Walker and Barnett 1999; Eadington 2004; Walker 2004). The NRC (1999: 186) explains that "most [studies] have appeared as reports, chapters in books, or proceedings at conferences, and those few that have been subject to peer review have, for the most part, been descriptive pieces." The result has been questionable, if not counterproductive, research:

> In most of the impact analyses . . . the methods used are so inadequate as to invalidate the conclusions. Researchers . . . have struggled with the absence of systematic data that could inform their analysis and consequently have substituted assumptions for their missing data. (NRC 1999: 185)

For example, in many social cost studies, researchers use ad hoc methodologies to identify and measure costs.[3] As a result, the annual social cost estimates have ranged from a "conservative" $9,000 to over $50,000 per person.[4] Certainly, there is no standardized methodology for measuring social costs.

Gambling research, even when it is clearly biased, can be very influential.[5] This is because the research has an obvious, direct link to policy. Since the field is relatively young, a new study is likely to address a problem that has not been examined before or to be seen as adding to existing but inconclusive evidence. As a result, it is more likely to receive attention by other researchers, policymakers, and the press. In more mature research areas (say, international trade), a new article may not have much of an impact on policy simply because there is a long history in the literature.

Since gambling research is interdisciplinary, and since many researchers have not read extensively outside their own field of expertise, it may be difficult to spot bias except in their own area of expertise. Biases aside, there are other important controversies over measuring benefits and costs of gambling.

B. General Measurement Hurdles

There are several general issues that make the measurement of the benefits and costs of gambling extremely complicated. Although some studies have acknowledged these issues, there is currently no ideal way to handle them.

1. Counterfactual Scenario

The key to understanding the economic benefits of gambling is the counterfactual scenario (Collins and Lapsley 2003; Eadington 2003; Grinols 2004). What would the resources used to build casinos, racetracks, and so on otherwise be used for? Does a new casino reduce unemployment or simply shift jobs among industries? What about gambling industry revenues? Are these merely shifted away from other industries? Is it possible that the shifting of resources within or among industries can be beneficial for efficiency reasons? A consideration of market economics and a review of empirical evidence

can be informative. Unfortunately, "what would have happened otherwise" in either the short or long run is not likely to be known. On the other hand, we might have strong suspicions in some cases (e.g., the Gulf Coast of Mississippi probably would not have seen as much change during the past decade were it not for casinos). To an extent, however, cost-benefit analysis relative to the counterfactual is guesswork.

2. Comorbidity

Comorbidity remains one of the biggest challenges to researchers interested in measuring the effects of gambling on society (Shaffer, Hall, and Vander Bilt 1997; Walker and Barnett 1999). Few authors have even considered the implications of multiple disorders; they simply attribute the full costs to the gambling disorder, even when other problematic behaviors, such as alcoholism, were clearly present (e.g., Thompson et al. 1997; Grinols and Mustard 2001; Grinols 2004). A mechanism is needed to allocate the harm among coexisting disorders. As with the counterfactual scenario, dealing with comorbidity in estimating the costs of gambling is mainly guesswork.

3. Government Expenditures and Social Costs

Even when particular government-paid costs of gambling are agreed to be "social costs," measuring them may be tricky. For example, most researchers count government expenditures relating to the treatment of problem gambling as social costs (Walker and Barnett 1999; Collins and Lapsley 2003; Eadington 2003; Single 2003). In fact, such expenditures are a primary focus of COI studies. The magnitude of these social costs in a country depends critically on the level of treatment-related expenditures by government. This makes the comparison of social costs across countries difficult. For example, if one country increases its expenditures on problem gambling treatment, the social costs of gambling in that country increase according to most studies, even if the number of problem gamblers or the severity of their problematic behaviors decreases. A country whose government spends nothing to deal with problem gambling may have a significantly lower social cost, ceteris paribus. Alternatively, suppose one

country compensates pathological gamblers 150 percent of their treatment costs. The social costs of gambling in this country would be overestimated.

This is a critical point to understand. Simply because the government spends money on something does *not* necessarily imply that the expenditure represents a social cost (i.e., a decrease in social wealth), though it *may*. Yes, members of society must give money to government (taxes) to fund such expenditures and so, in a sense, it is a cost to society members. However, the benefits also go to society members. For example, education, research, police, unemployment benefits, and so on would all be social costs if government expenditures are sufficient to qualify as social costs. These things are fundamentally different from the social costs associated with pathological gambling. Voters may wish to minimize the social costs of gambling, but do not typically seek to minimize education, research, police protection, and many other forms of government spending. If government expenditures implied social costs, then the social cost problem would be easily solved—by eliminating government spending! This point illustrates why social cost must be something other than mere expenditures by a person or negative consequences to an individual.

Browning (1999) discusses government expenditures as externalities. His discussion is in the context of smoking and the related health care costs that are borne by government. He calls these "fiscal externalities." They are not technological externalities, because expenditures by government result in taxes on citizens, and tax rates are not arguments in utility functions (Browning 1999: 7). In discussing cigarette smoking and medical care subsidies, Browning (1999: 12–13) explains:

> If a fiscal externality in the cigarette market is associated with excessive cigarette smoking and there is a welfare cost, it is simply a reflection of the welfare cost produced by the medical care subsidy. There is no "new" inefficiency produced by the fiscal externality. Fiscal externalities, therefore, do not necessarily imply any inefficiency. If there is inefficiency associated with the fiscal externality, it reflects the distorting effect of the policy (here, the medical care subsidy) that creates the fiscal externality. Fiscal externalities themselves do not cause any new inefficiency in resource allocation.

This is an important perspective that must be considered and addressed by gambling researchers, especially since many researchers call for more government support of pathological gambling treatment and prevention expenditures.

Social cost studies that simply use government expenditures as the measure of social costs are problematic. Yet, there is no obviously better way to handle these costs. As Kleiman (1999: 638) explains in the context of drug and alcohol abuse, "since the costs of remedies are measured, while the suffering they avoid is not, the development of a treatment for an injury or disease can increase, rather than decrease, its measured cost." Clearly, this approach is misguided.

One could argue that government expenditures should be handled in a fundamentally different way, since they may be tied more directly to politics than to the level of problem gambling in the country. Even so, the level of government spending can provide useful information to researchers interested in studying the cost effectiveness of different treatment options.

4. Surveys and Fungible Budgets

In many cases, social cost estimates are derived from responses given by Gamblers Anonymous (GA) members. Examples of this type of study include Thompson et al. (1997) and Schwer, Thompson, and Nakamuro (2003). Researchers will give a survey to a small number of problem gamblers and, from that nonrandom sample, will extrapolate to the general public. Diagnostic and screening instruments like the SOGS and DSM-IV commonly ask how a person financed his or her gambling.

Extrapolating from the experience of the most serious problem gamblers to the general population is inappropriate (Walker and Barnett 1999). But a more fundamental problem results when social cost estimates are based on survey responses from problem gamblers. This is because budgets are fungible. It is difficult for an individual to unequivocally specify the source of money lost gambling (e.g., paycheck, credit card, borrowing from friends or family). People may have several sources of income or money; they also have many types of consumption spending. A person's financial problems may not be due solely to problem gambling.[6] For example, suppose a problem

gambler buys a car beyond what his budget would allow, even without his gambling losses. To what extent are financial woes due to gambling or to the expensive car? This issue has not been dealt with effectively in the literature, but it is very important.

Blaszczynski, Ladouceur, Goulet, and Savard (2006) explain that self-reported expenditure estimates are ambiguous and imprecise. This is due in part to respondents misunderstanding the questions or misinterpreting the instructions for answering them. Of course, there is no guarantee that respondents will be honest or that they will not simply blame all their problems on gambling if they are being asked about the gambling problem. But if survey respondents cannot accurately estimate the monetary amount of their gambling losses, as found by Blaszczynski et al. (2006), how can we expect them to correctly identify specific sources of their income that is spent on gambling?

C. Unresolved "Benefit" Issues

The long-standing areas of disagreement on the benefits of gambling deal more with the degree, rather than type, of benefits. Most researchers acknowledge that legalized gambling may have positive economic impacts. These may include increased employment, higher average wages, capital inflow, increased tax revenues, more choice for consumers, and increased competition among entertainment industries.

The gambling industries have promoted gambling for their own profit, of course, and for the potential economic benefits that may accrue to the local economy. Recent evidence suggests there may even be health benefits from gambling for some (Desai et al. 2004). Despite some agreement on the types of benefits that may result from legalized gambling, there is debate over how these should be measured.

1. Tax Revenues

Most researchers, politicians, newspaper reporters, and citizens apparently believe that the tax revenues from gambling are a primary benefit of legalized gambling. Indeed, this is one of the major selling points of casinos. However, from a purely economic perspective, tax

revenue should not be considered a net benefit of any policy. The reason is that the taxes gained by government come at the expense of the taxpayer. In other words, the benefits to one group are offset by costs to another group.

Even so, voters or politicians in a state, province, or country may decide that certain types of taxes are preferable to others. For example, if there is the choice between an easily avoided tax, like a tax on lotteries or casino owners, and an "unavoidable" tax like a sales tax, many people may prefer the lottery tax or taxes on casino revenues to a general sales tax.[7] The popularity of casinos as a fiscal policy tool has something to do with politicians wanting to generate tax revenue in a relatively painless way. Taxes on casinos are likely to face less opposition than increasing a general sales tax. So, in this sense, gambling taxes could be considered a benefit relative to the counterfactual. In cases where casinos are located on state or country borders, much of the tax revenue may accrue from outsiders. In this case, the tax revenue can be counted as a benefit to the local population, who may see their tax burdens decrease as result of tourism and the associated tax revenues.

Obviously, good records exist for tax revenue, so these are relatively easy to measure. This may explain why tax revenues receive the majority of the attention in the economics of gambling literature. Still, it is the *net* change in tax revenue that is important, rather than the absolute taxes paid by casinos or generated through lotteries.

2. Income and Employment

When a community is considering legalizing casino gambling, one of the benefits it might expect is an increase in local employment and the average wage rate. Yet, analyzing the effect of a new industry to a community can be tricky. Does the new industry create new jobs, on net, or are jobs merely shifted among industries? This is an important issue that is commonly raised by researchers (e.g., Grinols 2004). Even if the gambling industry "cannibalizes" existing industries, is the community better off because of higher wages or increased competition among employers for qualified employees? The effects of gambling on local labor markets have not received adequate attention in the economics literature.

Grinols and Mustard (2001: 147) argue: "There is no net gain to the economy from shifting a job from one location to another unless it increases profits to the economy." This is wrong. First, if the casino job creates more value for consumers than the old job, regardless of overall profits in the economy, then the new job is beneficial to the economy. Furthermore, Grinols and Mustard (2001) ignore the fact that workers who switched jobs to work at casinos must benefit by the new job. Indeed, for all casino employees, their casino job must be the best employment opportunity available to them; otherwise, they would be working somewhere else. This effect is certainly difficult to estimate in money terms, but its abstract nature does not mean that it is irrelevant. Overall, there are probably significant employment benefits from the expansion of gambling industries.

3. Consumers' Surplus and Variety Benefits

Perhaps the greatest potential benefit from legalized gambling is the enjoyment consumers receive from the activity. After all, consumers vote on their favorite goods and services with their pocketbooks. The consumer benefits from gambling are certainly much greater than are tax revenues or employment growth. Several authors have acknowledged this (Eadington 1996; APC 1999; Walker and Barnett 1999; Collins 2003), but most researchers discount or ignore it (e.g., Grinols and Mustard 2001; Grinols 2004). Yet, consumer benefits are critical to understanding how the availability of gambling can benefit society.

There are at least two potential sources of consumer benefits from casino gambling. Normally, consumers benefit when increased competition in a market leads to lower prices. This is one source of consumers' surplus, illustrated by two examples. First, sometimes casinos advertise particular games. If one casino offers craps players "10X odds" while other casinos offer only the standard 2X odds, this is price competition.[8] If one casino advertises that its slot machines pay off a higher percentage of handle than other casinos, it is a form of price competition. If the effective price of playing the casino games falls, then consumers' surplus rises. Second, casinos are often bundled with other products like hotels and restaurants. To the extent this increases competition in the local restaurant and hotel markets, whether through price decreases or quality increases, the casinos

provide benefits to consumers in the form of consumers' surplus. These benefits have been ignored in most cost-benefit of gambling studies.[9]

The other consumer benefit that has been ignored by most researchers relates to product variety. When casino gambling is first introduced to a state, for example, it has the effect of increasing the product choices for consumers. This "variety benefit" could be significant, but it is difficult to measure.[10] In his recent book, Grinols (2004) completely ignores both of these potential benefits from gambling and instead focuses on a rather insignificant benefit, "distance consumer surplus."

Some of the largest benefits of gambling defy measurement. As a result, many researchers focus on more obvious and easy-to-measure benefits of gambling, like employment and tax revenues. If research is to improve in quality, these consumer benefits must be estimated. Otherwise, the best we can expect is superficial benefit estimates.

D. Unresolved "Cost" Issues

The "social cost" of gambling is perhaps one of the most debated economic issues in the gambling literature. Among the different research approaches, there is little agreement either on how to define a cost or on how to measure it. This makes the cost side of the equation even more difficult to deal with than the benefits side.

1. Jargon

The cost-benefit jargon itself may be causing confusion among policymakers and the researchers who use the terminology. All of the following terms, as well as others, describing "costs" have been used in recent papers: private, social; internal, external; direct, indirect; harms, costs; intangible, tangible; external costs, externalities; pecuniary externalities, technological externalities. If a standardized social cost methodology were adopted, presumably it would utilize a terminology that is easy to understand. In any case, researchers are concerned most with quantifying the costs that pathological gamblers impose on others.

2. Definition of "Social Cost"

What constitutes a "private" and "social" cost of gambling is debated, even among economists. Walker and Barnett (1999) provide a detailed explanation of the welfare economics (utilitarian) perspective on social costs (McGowan 1999). They argue that a social cost requires that the action reduce the total wealth in society. This implies that wealth transfers (e.g., gambling losses, bad debts, etc.) cannot be considered social costs. This "economic" perspective has been criticized because it fails to count as costs many of the negative effects that researchers and practitioners believe are critical (Hayward 2004; Thompson et al. 1999). At the other extreme, Thompson et al. (1997) and Grinols (2004) count as a social cost almost anything negative that can be remotely linked to gambling. The differences in opinion on these issues are illustrated in Thompson et al. (1999) and Walker (2003a).

The economics definition of social costs is based on the idea that these costs reduce the overall level of societal wealth, where "wealth" refers to overall well-being, not just material wealth (Walker and Barnett 1999). In this sense, the economics definition fits in the context of a public health perspective, but it is distinct from the COI approach. The COI approach is adapted from the substance abuse literature and focuses on costs insofar as they impact GDP. Economists are skeptical about the use of GDP as a measure of well-being because it does not account for things like the quality of goods, the value of leisure time, environmental quality, or other factors that may affect happiness.

Obviously, what should be counted as costs of gambling—and how to measure them—are issues that will continue to be debated for the foreseeable future. There are several distinct approaches to this issue, and a reconciliation of the different methodologies is not likely to occur soon.

Some researchers (e.g., APC 1999; Collins and Lapsley 2003; Single 2003) have based their definition of social costs on that posited by Atkinson and Meade (1974) and Markandya and Pearce (1989). According to these researchers, for a cost to be "private," the actor must have *full knowledge* about the potential costs of consuming the good. In the case of smoking, this implies that if the consumer is not

"fully informed" about the harms from smoking, he or she underestimates the harms and chooses to smoke too much. The result is a social cost, *even if it is borne by the smoker himself or herself*.

The Markandya and Pearce (1989) social cost definition ignores the fact that consumers are never fully informed about any of their decisions. For example, when I decide to get into my car and drive to work, I am not fully informed about the chances of being in an accident or my probability of surviving a particular accident. Furthermore, consumers are probably as likely to overestimate as underestimate the dangers from smoking, gambling, and so on.[11] Following the logic of Markandya and Pearce, if a consumer *over*estimates the costs of smoking, he or she will smoke too *little*. The result is less smoking than is socially optimal. Yet this possibility is not acknowledged by Markandya and Pearce (1989) or researchers who cite them. There are other problems with the Markandya and Pearce methodology that may undermine the validity of studies based on it. The result of using this definition of social cost is likely an overestimate of the costs, at least from the economic perspective.

3. Transfers of Wealth

Some researchers have argued that wealth transfers do not change the overall level of societal wealth, so they do not belong in cost-benefit calculations (NRC 1999; Walker and Barnett 1999; Collins and Lapsley 2003; Eadington 2003; Federal Reserve Bank of Minneapolis 2003; Single 2003). However, others argue that transfers (bankruptcies, thefts, "bailouts," and "abused dollars") do belong in the equation (Markandya and Pearce 1989; Thompson et al. 1997; Grinols and Mustard 2001; Grinols 2004) because a transfer is a cost to *someone*. This is an extremely important issue because how transfers are treated will have perhaps the largest impact on the magnitude of social cost estimates.

Some researchers base their argument that transfers are costs on an extremely vague concept, coined "abused dollars" by Politzer, Morrow, and Leavey (1985: 133):

> [the] amount [of money] obtained legally and/or illegally by the pathological gambler which otherwise would have been used by the pathological gambler, his family, or his victims for other essential purposes. These

> abused dollars include earned income put at risk in gambling, borrowed, and/or illegally obtained dollars spent on basic needs and/or provided to the family which otherwise would have been "covered" by that fraction of earned income which was used for gambling, and borrowed and/or illegally obtained dollars for the partial payment of gambling related debts.

Researchers who cite "abused dollars" are typically staunch anti-gambling advocates (e.g., Grinols 2004; Grinols and Mustard 2001; Kindt 2001). Kindt (2001: 31) suggests that the abused dollar cost concept "was given the actual or implied imprimatur of the *Journal* [*of Gambling Behavior*]." However, the editor of the *Journal* at the time, Henry Lesieur, has explained, "I have regretted my editing and allowing publication of the Politzer et al. article on the costs of pathological gambling. It has justifiably been criticized" (Lesieur 2003: 1).[12]

The problem with the concept of "abused dollars" is that using this definition, *all* money gambled could be considered "abused dollars." The definition lacks precision, as it fails to define "essential purposes." This type of generality leaves subsequent researchers open to interpret the concept any way they see fit. This has opened the door for advocates like Grinols and Kindt to vastly overestimate the social costs of gambling. If we hope to develop a standardized methodology for measuring the costs and benefits of gambling or to move toward offering relatively unbiased policy analyses, vacuous concepts like "abused dollars" need to be purged from the literature.

The issue of wealth transfers, say, from bad debts and bankruptcies, is an important one. Most noneconomists are not satisfied with the economists' "transfer of wealth" argument. But treating transfers as social costs has its own problems, as explained by Walker (2003a: 165–166). In any case, measuring transfers is relatively simple, once it is determined how they should be handled in cost-benefit studies.

4. Productivity Losses

Employment and worker productivity may be affected by problem gambling. Some researchers argue that there is a social component of reduced labor productivity, so this should be included in social cost estimates (Thompson et al. 1997; Grinols and Mustard 2001; Grinols 2004). Reduced productivity is also an ingredient of cost-of-illness studies (Single et al. 2003: sec. 4.4). Other authors have argued that

such costs are internalized because the costs fall upon one of the parties of the labor contract (Walker and Barnett 1999; Eadington 2003; Walker 2003a). If a problem gambler becomes less productive on the job, the cost of that falls on the employer, unless the employer cuts the worker's wages or fires him or her and hires a new, more productive worker. Therefore, lost productivity is not an external, or social, cost. This is an issue that deserves much more analysis than it has received in the literature.

5. Harm to Family Members

There is no doubt that problem gamblers' behavior may harm family members. But some researchers have argued these costs are "internalized" and do not belong in social cost measures (Manning, Keeler, Newhouse, Sloss, and Wasserman 1991; Walker and Barnett 1999). Others are less sure how to deal with the issue, but suggest that the costs are probably not internalized (Sloan, Ostermann, Picone, Conover, and Taylor 2004: 220–221). Even if harm to family members is a social cost, how to measure it in money terms is unclear. There are other examples of harms from gambling that are not easily measured. For example, how should we measure the cost of a divorce caused by problem gambling? Rather than focusing on money measures, perhaps simply noting that family problems are a likely side effect of pathological gambling would be a better way to acknowledge this issue.

6. Crime

Research indicates that some pathological gamblers engage in criminal activity. The costs associated with these activities may be considered to be social costs. Although there have been attempts to estimate the relationship between crime and gambling, there is still no general understanding of this issue. As a result, even when cost studies include a crime cost component, they are, to a large extent, guesses about the magnitude of such costs. Further complicating the measurement of the crime effect is the comorbidity issue. Until researchers can develop a method for separating the effects of combined disorders, cost of crime estimates will continue to be flawed. An example of this type of research is discussed below.

E. Summary

Taken together, the issues raised in this section represent an insurmountable obstacle to researchers seeking to accurately estimate the social costs and benefits of gambling. Despite several conferences being dedicated to these specific issues, there is still no consensus on how the costs and benefits of gambling should be classified or measured. As a result, cost-benefit analyses of gambling continue to be of limited value. Unfortunately, politicians and the media will probably continue to seek these types of studies to use as their basis for policy decisions. Some researchers will continue to write such studies.

IV

Example from the Literature

A NUMBER OF STUDIES have examined the problems in gambling research.[13] For a general review, see Walker (2007b). Grinols (2004) offers one of the most recent comprehensive economic treatments of casino gambling in the United States. Grinols's work is influential, as it has been used as a foundation for applied studies (e.g., PolicyAnalytics 2006). He does not provide an original estimate of cost. Instead, he simply averages previous estimates and arrives at his estimate of the annual cost to society of one pathological gambler of $10,330 (Grinols 2004: 171).

Since Grinols uses previous estimates to derive his own, we will analyze one of those studies here. Schwer et al. (2003) is one of the studies used by Grinols (2004: 170, 172–173). A further reason to analyze this study is that the authors provide explicit details of their methodology, perhaps to a greater extent than any other study.[14] This discussion will be informative, as it will provide the reader with specific examples of some of the conceptual problems discussed in general terms in the previous section. As the reader will see, social cost of gambling estimates are often derived from arbitrary assumptions.

The report by Schwer et al. (2003) is an attempt to measure the social costs of problem and pathological gambling in Las Vegas. The

issue they address is an interesting one—whether the social costs in a "mature" casino market vary from those in less developed markets. This report received a significant amount of media attention in 2003, and a revised version of the paper was later published (Schwer and Thompson 2005).

The authors should be commended for explaining the details of their analysis. Unfortunately, their results are unreliable because their analysis is seriously flawed. The main methodological problems are (1) basing their analysis on past studies with their own methodological defects; (2) generating a cost estimate using an inappropriate conception of "social cost"; and (3) relying on numerous arbitrary assumptions.

A. Estimate of the Social Costs of Casinos in Las Vegas

The Schwer et al. (2003) report applies a methodology developed in earlier studies to survey results from 99 Gamblers Anonymous (GA) members in Las Vegas. Based on the survey results, the authors estimate the annual social cost per pathological gambler. The authors admit that the survey was not random, but argue that their sample is probably representative of the serious problem gamblers in Las Vegas (2003: 5). However, GA members are likely to represent the most severe cases of pathological gambling. With such a small, biased sample, it is inappropriate to generalize to the population of Las Vegas pathological gamblers.

The survey was used to collect a variety of demographic data on the GA members. It also asks about the following: volume of gambling activity, total lifetime gambling losses, sources of money used to gamble, gambling debt accrued, bankruptcy and other court proceedings to deal with creditors, theft or other illegal activities committed, convictions and jail time served, gambling's effects on jobs, government aid received, and professional treatment received.[15]

Schwer et al. use the survey data to estimate average levels of the different variables' effects. For example, to determine the average amount of lost work time among pathological gamblers, they take the number of people who indicated they had missed work because of gambling (50 of 89 respondents, or 56 percent). Those people

reported an average of 17.22 hours missed each month due to gambling. Allocated over 89 respondents, the average loss is 9.67 hours per month, or 116.1 hours per year (2003: 11).[16] To determine the "social cost" of this, they multiply the 116.1 hours by $15 per hour, to get $1,742. The $15 rate is based on Thompson et al.'s (1996: 17) use of an average annual pay rate of $23,610.

Similar calculations were made to derive the other costs included in their estimate.[17] In some cases, the authors "trim" the data to appear more conservative. Presumably, they are eliminating outliers from the data, but this process is not clearly explained.

Using the process described above for various effects of pathological gambling, Schwer et al. estimate the average annual social costs per pathological gambler in Las Vegas to be $19,085. The components of this figure are listed in Table 1. In the next step, the authors multiply this cost by 43 percent, because Politzer, Morrow, and Leavey ([1981] 1985) estimated that the costs of gamblers not in treatment are only 43 percent as high as those in treatment. This adjustment cuts the annual social cost estimate to $8,207 per pathological gambler.

The authors use current population estimates and the prevalence rates estimated by the NGISC (1999) and Volberg (2002) to estimate the total social costs attributable to problem and pathological gamblers in Las Vegas. The estimated range of annual social costs is an astonishing $301–$470 million.

B. Methodological Problems in Schwer et al. (2003)

The social cost estimate by Schwer et al. (2003) is based on the methodology used in previous social cost studies, including Politzer et al. (1985), Thompson et al. (1996, 1999), and Thompson and Quinn (2000). Unfortunately, Schwer et al. (2003) have ignored published critiques of these works that question the validity of their social cost methodology.[19] The National Research Council notes: "Most [studies] have appeared as reports, chapters in books, or proceedings at conferences, and those few that have been subject to peer review have, for the most part, been descriptive pieces. As this research evolves, it should be subjected to peer review to help ensure that it indeed is advancing the body of knowledge" (NRC 1999: 186).

Table 1

Estimated Annual Social Costs per Pathological Gambler (Uncorrected)[18]

Item #			
	Employment		$6,017
1	Missed Work	$1,740	
2	Productivity Losses (Quit Jobs)	2,813	
3	Fired from Work (Productivity Lost)	1,423	
4	Unemployment Compensation,	41	
	Bad Debts, and Civil Court		$10,291
5	Bankruptcy Debt Loss	9,556	
6	Civil Court Costs (Bankruptcy/Debt/Divorce)	735	
	Criminal Justice System		$2,341
7	Theft	1,819	
8	Arrests	99	
9	Trials	89	
10	Incarceration	84	
11	Probation	250	
	Treatment and Social Services		$436
12	Treatment Costs	286	
13	Welfare	93	
14	Food Stamps	57	
	Total Estimated Annual Social Cost per Pathological Gambler		**$19,085**

Source: Schwer et al. (2003: 17).

C. A Revised Social Cost Estimate

As Table 1 shows, Schwer et al. (2003) estimate a number of curious "costs." This conception of social costs was first analyzed by Walker and Barnett (1999). That discussion will not be repeated here, but Walker and Barnett explained why many of the alleged costs cannot be appropriately classified as such.

First, if one adopts a standard definition of "social cost" from the economics literature, then items so classified must result in a decrease

in the aggregate level of wealth to society. We can think of such items as the result of the existence of pathological gambling behaviors; resources used to address those problems instead of being used for other purposes would qualify as social costs.[20]

Using the Walker and Barnett (1999) social cost methodology, then the Schwer et al. (2003) cost estimate must be revised. First, items in Table 1 that are wealth transfers should be eliminated from the social cost estimate. Items 4, 5, 7, 13, and 14 are wealth transfers, not social costs. Other items on the Schwer et al. list of costs are internalized. That is, there is no external or social component to them. These include Items 1, 2, and 3.

Simply by considering the social costs from an economic perspective, in other words, from a perspective of the well-established economics literature on externalities and social costs, the annual social cost per Las Vegas pathological gambler falls from $19,085 to $2,049 (see Table 2). This is a more reasonable estimate of the true social costs. Recall that

Table 2

Revised Social Cost Estimate

Item #			
	Civil Court Costs		$1,182
6	Court Costs	$635	
*	Legal Fees (Bankruptcy Proceedings and Civil Suits)	418	
*	Legal Fees (Divorce Actions)	129	
	Criminal Justice System		$581
8	Arrests	$99	
9	Trials	89	
10	Incarceration	84	
11	Probation	250	
*	Legal Fees	59	
12	Treatment Costs		$286
	Total Estimated Annual Social Cost per Pathological Gambler		**$2,049**

*Schwer et al. (2003) make several apparent errors in their table. Corrections have been made as indicated in note 18.

Schwer et al. multiply their estimate by 43 percent to get $8,207, as discussed above. When the revised estimate of $2,049 is similarly adjusted, the annual social cost per pathological gambler is $881.

As the reader may have already realized, the original cost estimate is almost completely arbitrary. Even the adjusted estimate could be argued to be arbitrary if one does not subscribe to the welfare economics perspective. Still other caveats are necessary if the gambling social cost estimate (or the adjusted one here) is to be taken seriously.

D. Prevalence Estimates

Psychologists estimate the percentage of a given population that is afflicted with gambling behavior disorders. These disorders are sometimes divided into two categories, "problem gambling" and "pathological gambling." The latter is a more serious condition.[21] Researchers typically multiply the prevalence rate by the population and the estimate cost per pathological gambler to arrive at a total social cost estimate for society (or the locality or state).

The prevalence rates Schwer et al. use to derive the cost estimates for problem and pathological gambling—shown in Table 3—come from two different sources. Volberg (2002) estimated the Nevada prevalence rate for problem gamblers at 2.9 percent and for pathological gamblers at 3.5 percent, for a total of 6.4 percent. For the second pair of estimates, Schwer et al. (2003: 18) cite the NGISC (1999), which reported data showing the rate of problem gamblers at 1.6 percent, and for pathological gamblers, 0.9 percent, totaling 2.5 percent.[22] Since the NGISC (1999: 4-4) reported that these rates double (roughly) when a population is within 50 miles of a casino,[23] Schwer et al. use 3.2 percent and 1.8 percent for problem and pathological gambler rates, respectively, in their study of Las Vegas.

In deriving the cost estimates for problem gamblers, Schwer et al. use the "low" prevalence rate of 2.9 percent (Volberg) and the "high" rate of 3.2 percent (NGISC). For pathological gamblers, they use a "low" of 1.8 percent (NGISC) and the "high" rate of 3.5 percent (Volberg).

Volberg's prevalence estimates are based on the SOGS (South Oaks Gambling Screen). When she presented her research to the Nevada

Table 3

Comparison of Schwer et al. and Revised Total Social Cost Estimates[25]

Row #		Schwer et al. Estimate		Revised Estimate		
		Low	High	Low	High	NODS
1	Est. Annual Social Cost per Pathological Gambler	$8,207	$8,207	$881	$881	$881
2	Est. Number of Pathological Gamblers (Low = 1.8%; High = 3.5%; NODS = 0.3%)	19,836	38,571	19,836	38,571	3,306
3	Total Estimated Social Costs, Pathological Gamblers (Row 1 x Row 2)	$162.8 million	$316.6 million	$17.5 million	$34.0 million	$2.9 million
4	Est. Annual Social Cost per Problem Gambler (Row 1 x 53%)	$4,350	$4,350	$467	$467	$467
5	Est. Number of Problem Gamblers (Low = 2.9%; High = 3.2%; NODS = 1.8%)	31,959	35,265	31,959	35,265	19,836
6	Total Estimated Social Costs, Problem Gamblers (Row 4 x Row 5)	$139.0 million	$153.4 million	$14.9 million	$16.5 million	$9.3 million
7	**Total Estimated Annual Social Costs of Problem and Pathological Gambling** (Row 3 + Row 6)	**$301.8–$470.0 million**		**$32.4–$50.5 million**		**$12.2 million**

State Gaming Control Board (SGCB 2002), she was questioned as to the legitimacy of using SOGS over other instruments. Volberg explained that "the SOGS was used in order to obtain prevalence data comparable to the large number of similar surveys carried out in the United States and internationally" (SGCB 2002: 40). However, she suggested that the SOGS is "on its way out" (SGCB 2002: 130; also see 145) and will eventually be replaced, probably with the NORC DSM Screen (NODS). While the SOGS was developed in the mid-1980s, the more recent NODS relies on "the most current psychiatric criteria" (Volberg 2002: 40).[24]

Interestingly, the prevalence estimates for Nevada using the current NODS are 1.8 percent problem gamblers and 0.3 percent pathological gamblers, for a total of 2.1 percent problem and pathological gamblers (Volberg 2002: 40, Table 21). This is much lower than the combined 6.4 percent used in the Schwer et al. study. If the cost estimate is revised using Volberg's NODS prevalence rates, the estimated total cost falls to $12.2 million.

Table 3 shows how sensitive the total Las Vegas social cost estimate is to the prevalence rate used in the calculation. This information helps emphasize how and why cost-benefit studies are so imprecise and unreliable.

E. Other Issues and Assumptions

The previous section offers a detailed analysis of some of the major problems in the Schwer et al. (2003) study. It is important to be aware of the level of arbitrariness involved in deriving such estimates, especially since the work by Schwer et al. (2003), Grinols (2004), and others is taken seriously by the media, voters, and policymakers. Aside from the above-mentioned issues that introduce uncertainty into the social cost estimates, there are other problems that have not been accounted for in studies like Schwer et al. (2003) or Grinols (2004).

For example, Walker and Barnett (1999) identified a variety of other potential social costs that are not measurable and have been excluded from published social cost estimates. These costs include those associated with lobbying and the political process of casino

legalization and the psychic costs of pathological gamblers and their families caused by gambling problems.

In addition, one must consider how to deal with government expenditures related to treatment costs, for example. Are these social costs or fiscal externalities as described by Browning (1999)? If one takes Browning's view, then Item 12 from the Schwer et al. cost estimate (Table 1) would drop out, further reducing the cost estimate. Perhaps most seriously, the Schwer et al. (2003) study, along with most other studies, including Grinols's (2004), ignores the issue of comorbidity. This oversight essentially renders all cost estimates of problem gambling *useless*.

Finally, the Schwer et al. (2003) study includes countless arbitrary assumptions that have not been mentioned above. Even if the social costs presented in Table 2 were agreed upon, the Schwer et al. cost *values* are mostly based on estimates from the Thompson et al. (1996) study. To my knowledge, those estimates (and that study) have not undergone peer review.

Consider several of the social costs in Table 2. At the beginning of their discussion on costs, Schwer et al. write: "For purposes of clarity and comparisons, and in recognition of past efforts to calculate specific costs for matters such as arrests and [court] appearances, we will use the cost calculations identified in the 1996 Wisconsin study" (2003: 14). Yet, although the Thompson et al. (1996: 19) estimate for arrest costs was $500, Schwer et al. (2003: 16) instead use a cost of $2,900, attributed to the NGISC. One wonders why Schwer et al. (2003) abandon their goal of clarity and comparison in order to use a higher cost estimate.

In explaining their annual treatment cost estimate (initially $545), Schwer et al. write:

> One-fifth of this cost was paid directly by the gambler. One-fourth was not paid at all, making it a "social cost," ($136), while 55 percent was paid by insurance providers. Of the latter amount, we will assign one-half to social costs, or $150. Hence we find an annual social cost of treatment (to others) to be $286. (Schwer et al. 2003: 16)

This process seems arbitrary.

There is no explanation of the $9,600 per person probation cost (annualized and averaged to $250 in Table 1). However, Thompson et al. (1996: 19) describe their probation cost estimate:

> The cost of probation and parole was estimated from the state budgets for corrections minus the costs of the operation of prisons, jails, and juvenile corrections. We assigned two-thirds of the residual budget to probation and parole costs, and divided the costs by the number of persons in these programs.

There are a variety of court costs. Schwer et al. write: "The earlier study found that each federal court action costs $7,500. Considering that these actions may not be as complicated or long enduring as some others, we assign a 50 percent cost factor of $3,750 for each . . . case" (2003: 15).

These examples illustrate that the Schwer et al. cost figures are, to a large extent, derived arbitrarily. Even minuscule changes in the assumptions will have an enormous impact on the social cost estimate. Yet Grinols (2004) does not bother to analyze the Schwer et al. (2003) study, or any of the others, prior to using them to derive his own cost estimate of $10,330. Despite his data being largely arbitrary, Grinols's writing gives the impression that he believes these studies are authoritative.

In their "discussion" section, Schwer et al. suggest that "the gaming industry" may wish to address the issue of social costs before it faces legal action similar to that in the tobacco industry.[26] They suggest "fund-sharing" or increased taxes to fund problem gambling education and treatment (2003: 19).[27] Policy recommendations based on such an arbitrary analysis are certainly questionable.

In discussing prevalence studies, the NRC (1999: 100) writes: "It is important to emphasize how inadequate [the] research base is for drawing confident conclusions about the prevalence of pathological and problem gambling." As indicated in Table 3 and the previous discussion in this section, social cost estimates are very sensitive to the types of assumptions used in the analysis. Therefore, policymakers must use extreme caution when interpreting these studies.

V

Conclusion

THE PURPOSE OF THIS PAPER is to inform readers of some of the potential problems and ambiguities inherent in cost-benefit analyses, particularly of casino gambling. We have examined general measurement

issues, as well as problems specific to the benefit and cost sides of the equation. This general discussion was supplemented with a specific example study from the literature. Considering the number of problems that exist in measuring costs and benefits of gambling, and considering the number of different approaches (economic, COI, public health), it hopefully is clear that the methodological and practical measurement problems in this area of research are unlikely to solved in the near future.

This begs the question: Should researchers bother to do cost-benefit analyses at all? Reuter (1999) and Kleiman (1999) provide valuable perspectives on this issue, as they comment on a cost estimate for alcohol and drug abuse (Harwood, Fountain, and Livermore 1999). Both Reuter (1999: 636) and Kleiman (1999: 640) suggest that research effort may be better spent estimating the impacts of policy changes rather than absolute costs and benefits. This certainly applies to gambling as well. Still, there is political demand for cost-benefit studies. Reuter (1999: 638) explains:

> No senior political figure can afford not to have a number to offer as an indicator of the seriousness of the problem with which her agency deals. The number should be current and have a scientific basis to be credible; that it may have basic conceptual flaws is probably not relevant because there is little organized interest in discrediting it.

As for the usefulness of studies like the Harwood, Fountain, and Livermore (1999) study of alcohol and drug abuse, Reuter (1999: 638) writes: "[The study], although an enormously helpful compendium of a wide range of estimates of various components of something that might be called cost, is an unsatisfactory answer to a question of dubious importance." The same could be said of the study by Schwer et al. (2003), Grinols (2004), and others in the gambling literature.

Certainly, the casino industry can have positive and negative economic impacts. But attempting to estimate a monetary value for these is tricky business. Policymakers and voters would like to have hard data on the effects of casinos prior to legalizing or expanding the industry. There is no shortage of researchers willing to supply politicians with social cost estimates. Unfortunately, most—if not all—of such estimates are flawed.

Despite their attempt to appear "conservative," the Schwer et al. (2003) report does not provide a scientifically valid estimate of the social costs in Las Vegas. There are serious methodological problems with their analysis. For similar reasons, Grinols's (2004) social cost analysis is invalid. It simply reports the results from other flawed studies.

Although there are several competing methodologies for evaluating the effects of the gambling industry and problem gambling behaviors (i.e., cost of illness, economic, and public health), none of these approaches is adequate. Even if researchers from these different camps could agree on a "best practice," there would still likely be serious methodological problems. Until a valid method for measuring the costs and benefits of legalized gambling can be developed, perhaps the best we can do is make policymakers, voters, and other researchers aware of potential problems in the existing literature, while trying to make improvements wherever possible.

Notes

1. The Whistler Symposium papers were published in *Journal of Gambling Studies* (see Wynne and Shaffer 2003).

2. An example here is the criticism that some psychologists have of economists: that they ignore wealth transfers when these may amount to serious consequences to those facing decreased wealth.

3. Examples include Goodman (1994, 1995), Grinols (1994, 1995, 2004), Grinols and Mustard (2001, 2006), Grinols and Omorov (1996), Kindt (1994, 1995, 2001), and Thompson et al. (1997, 1999). See Walker and Barnett (1999), Walker (2003a), or Walker (2007b) for a more detailed review of the literature on social costs.

4. These estimates are by Thompson et al. (1997) and Kindt (1995), respectively. The higher cost estimates are clearly a result of bias (see Walker 2004).

5. For a discussion of biases in the gambling literature, and in particular the *Managerial and Decision Economics* issue on gambling edited by Grinols and Mustard, see Eadington (2004).

6. Obviously, there will be cases where gambling is the clear problem. But it is doubtful that irresponsible gamblers are otherwise financially responsible.

7. From the consumer's perspective, a sales tax *is* avoidable, but not easily, and much less so than a casino tax.

8. This is a fair bet placed behind the pass/don't pass line bet. This is one of the few statistically fair bets offered at casinos.

9. In the case of casinos, many researchers have instead focused only on the "cannibalization" effects.

10. Some economists have examined this effect. For examples, see Hausman (1998), Hausman and Leonard (2002), Lancaster (1990), and Scherer (1979).

11. One could argue that, to the extent gamblers are uninformed about the odds of the games they play, they are more likely to overestimate their chances of winning. The majority of lottery players arguably overestimate the chances of winning. After all, 1 in 100 million is hardly distinguishable from zero, yet lottery players relish imagining what they will do with their winnings if theirs is the lucky ticket. In the case of smoking, if there has been a significant amount of talk about (relatively harmless) secondhand smoke, people may be more likely to overestimate the dangers from smoking.

12. Lesieur appears to regret publishing the article because he believes that many of the costs of problem gambling are not measurable.

13. One of the best examples of poor scholarship in the economics of casino gambling is demonstrated by Kindt (2001). However, rather than examining that work here, interested readers can read published comments on that paper, including those by Eadington (2004), Levy (2004), and Walker (2004).

14. Walker and Barnett (1999) critique a previous study (Thompson et al. 1997) that partially serves as the foundation for the Schwer et al. (2003) analysis. Walker (2003b) is an analysis of Schwer et al. (2003), and serves as the basis for this section.

15. Although Schwer et al. (2003) do not provide the survey questions in their paper, they provide data on these variables. It is unclear exactly what the surveys asked and how they were administered.

16. Calculated $[(50 \times 17.22) / 89] \times 12 = 116.1$.

17. Many of the categories were annualized. The authors use an estimate for the length of the average pathological gambling "career." So for costs that were not already valued at an annual rate, they divide the total cost by a factor of four. For a vague description of this process, see Schwer et al. (2003: 14). The four-year term seems arbitrary.

18. The table presented in Schwer et al. has several errors. The total of the costs listed in their *text* (2003: 14–16) is $19,593. "Missed work" is listed in the text as $1,742, not $1,740. They also seem to have omitted several items from the table: legal fees for bankruptcy and civil court proceedings ($418), legal fees for divorce actions ($129), and legal fees for criminal trials ($59). Also, their table lists "civil court costs" at $735, though it is listed as $635 in the text. I am confused by their discussion, but I believe their number for "bad debts"

($9,556) was calculated incorrectly. (According to my calculation, it should be ($85,551 × 44) / 94 = $40,045. Annualized it would be $10,011.) This error turns out to be irrelevant, as discussed below. Since their overall cost estimate is based on the $19,085 value, it is used in this discussion.

19. Walker and Barnett (1999) and Walker (2003a) examine all of the above-cited papers or their subsequent versions.

20. This approach to social costs is not without critics. See Walker and Barnett (1999) for a complete description of this conception of social costs.

21. There is a wealth of literature on these classifications. However, the specifics are beyond the scope of this paper.

22. These prevalence rates are reported by the NRC (1999: 67). Earlier in their report (2003: 4), Schwer et al. (mistakenly?) report the problem gambler prevalence rate at 2 percent. Their calculations are based on the 1.6 percent figure.

23. This finding is based on combined data from telephone and patron surveys (NGISC 1999: 4-4). This is not an exact science, but surely there is a continuum. Are prevalence rates only sensitive to the 50-mile range?

24. As Volberg notes, since some of the sample sizes are rather small, the prevalence estimates should be interpreted with caution.

25. According to Schwer et al. (2003), the population estimate for Las Vegas adults is 1,102,033.

26. Schwer et al. (2003: 19) write: "The gambling industry, similar to alcohol and tobacco, pay[s] excise taxes, also referred to as externalities." Either this is a misstatement or it indicates the authors do not understand externalities.

27. A news report indicated that Professor Thompson believes the Schwer et al. study "should be cause for the Legislature to increase gaming taxes enough to raise $10 million for programs to treat gambling addiction" (Vogel 2003).

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