

The Hidden Social Costs of Gambling

BY EARL L. GRINOLS

The social costs of gambling are “hidden” only to the extent that they are often misunderstood or overlooked. Empirical studies (which estimate some, but not all, of the implied social costs of gambling) report that the impact on society of one additional pathological gambler is about \$9,393 per year.

Establishing a valid working concept of social costs and benefits is a priority for social policy. A cost is something we give up or pay, lowering our well-being; whereas a benefit is an increase to our well-being. Utility is the term we use to refer to the total cost and benefit we experience at some moment. When we engage in a wise trade—paying a cost to acquire a benefit—it raises our utility; otherwise we would refuse to make the trade.

We can extend this kind of analysis to social changes (by thinking of them as transactions that involve a number of households). Cost-benefit analysis is the process of valuing all of the implications of a social change and adding the elements in a common unit, generally dollars. Thus, a social benefit is any component in a cost-benefit analysis that reflects a rise in the total utility of the households involved. Likewise, a social cost is any component in a cost-benefit analysis that reflects a decline in the utility of those households.

How can costs and benefits be compared across individuals and households? Markets are valuable for measuring changes in well-being because goods and services that are traded in markets generate prices that place a natural number on the cost or benefit. They also confer the impression of

greater reality. However, anything that raises or lowers an individual's well-being is equally tangible. Market prices simply make it easier to assign a number. Fortunately, markets are quite extensive so that a large proportion of the things that matter to raising or lowering an individual's well-being can be assigned a common monetary value.

I will briefly discuss how to measure the social costs and benefits of impacts that are tied to markets and those that are not. Then I will apply the analysis to the social costs of gambling, explain why the social costs of gambling are sometimes considered "hidden costs," and summarize the evidence on their size.

COST CALCULUS CONCEPTS

In order to measure the costs and benefits of siting gambling operations in a community, we need concepts of the utility produced for individuals and groups (e.g., for problem gamblers and for others). Some of the things that influence these utilities are directly associated with market prices, but others are not. Both sorts of influences can be defined and measured. Here I will sketch how this is done; for the mathematical definitions and formulas for these measurements, please see the appendix.

Consider, for example, the government's decision to create a scenic national park that provides recreational opportunities for citizens. We can assume that an individual's well-being in relation to this decision will depend on three sorts of things: the amenity value, positive or negative, of the park in relation to the individual (which involves the many ways, times, and amounts that the individual enjoys or is harmed by the park); the advantages and cost of various public goods (like the public highway that makes the park accessible);¹ and the availability and cost of purchased commodities and services (like food, clothing, and camping gear) the individual requires over a year to enjoy the park.

Let us assume we can combine these three items—amenities, public goods, and traded goods—into a "utility" for the individual. Next, consider the least expenditure that the individual would need to achieve that utility. We now have a dollar measure for the individual's well-being understood as a function of amenities, public goods, and marketed commodities: presuming unchanging market prices, an individual's level of well-being is measured by the number of dollars it takes to achieve it. Because the expenditure level rises and falls in a monotonic way as the target utility level increases or decreases, we have a consistent dollar measure of changes in well-being. Social welfare would be the sum of all such expenditures over the members of society, and the change in social welfare would be its change. The same reasoning can be applied to other sorts of changes in the economic environment—like the decision about where to locate a casino. We could compare the welfare for individuals and groups before the casino is built and after it has been operating.

THE SOCIAL COSTS OF GAMBLING

In literature on gambling, the social costs fall into nine groups.² First are the *crime costs* that relate to police, apprehension, adjudication, and incarceration expenditures. There is a connection between gambling and crime through pathological gambling, which is defined by the American Psychiatric Association in its *Diagnostic and Statistical Manual* (DSM IV) as “persistent and recurrent mal-adaptive gambling behavior as indicated by five (or more) of” ten items. Among these behaviors are committing illegal acts such as forgery, fraud, and theft to finance one’s gambling.³

Business and employment costs include lost productivity on the job, lost work time, and unemployment-related employer costs (such as retraining workers or searching for replacement workers).

Bankruptcy imposes costs on society in the form of legal and other resources expended.

Suicide imposes costs on families and the wider society as well as ending the life of despondent gamblers.

Illness related to pathological gambling has been reported to include stress-related sickness, cardiovascular disorders, anxiety, depression, and cognitive disorders.

Social service costs are unemployment, treatment costs, and other social services and payments related to gambling.

Direct regulatory costs relate to government oversight of gambling and the gambling industry.

Family costs include divorce, separation, child abuse and neglect.⁴ Domestic violence is also related to gambling disorders.

Abused dollars are dollars obtained improperly but not reported as a crime. Often this is the case because the money or property is stolen by a relative or friend.

The table on page 22 shows the social costs collected from seven studies.

The cost figures are arranged according to the classification above and adjusted to April 2011 dollars using the CPI-U price index published by the Bureau of Labor Statistics. Notice that no figures are available for suicide and no numbers are reported for government direct regulatory costs. The average for the studies shown is \$9,393 in annual social costs per pathological gambler. For example, introducing gambling into a society of 100 adults which results in one additional

The social costs of gambling fall into nine groups: crime costs, business and employment costs, bankruptcy, suicide, illness related to pathological gambling, social service costs, direct regulatory costs, family costs, and abused dollars.

SOCIAL COSTS PER PATHOLOGICAL GAMBLER (APRIL 2011 \$)[†]

	WI	CT	SD	LA	US	SC	NV	ADJUSTED
CRIME	Thompson et al., 1996	Thompson et al., 1998	SD Leg. Research, 1998-99	Ryan et al., 1999	Gerstein et al., 1999	Thompson and Quinn, 1999	Schroer et al., 2002	Row Averages, 1996-2002
<i>Apprehension and Increased Police Costs</i>	\$32	\$50	\$1,380	\$42		\$79	\$63	\$274
<i>Adjudication (Criminal and Civil Justice Costs)</i>	\$896	\$695	\$37	\$514		\$325	\$56	\$421
<i>Incarceration and Supervision Costs</i>	\$550	\$621	\$527	\$546		\$308	\$211	\$461
BUSINESS AND EMPLOYMENT COSTS								
<i>Lost Job Productivity</i>				\$101		\$740	\$1,781	\$874
<i>Lost Time and Unemployment</i>	\$1,840	\$2,241		\$4,292	\$432	\$1,376	\$1,869	\$2,008
BANKRUPTCY	\$374					\$81	\$465	\$307
SUICIDE								
ILLNESS					\$945			\$945
SOCIAL SERVICE COSTS								
<i>Therapy and Treatment Costs</i>	\$317	\$80	\$104	\$314	\$40	\$57	\$181	\$156
<i>Unemployment and Other Social Services (Including Welfare and Food Stamps)</i>	\$440	\$678	\$758	\$48	\$196	\$217	\$121	\$351
GOVERNMENT DIRECT REGULATORY COSTS								
FAMILY COSTS								
<i>Divorce/Separation</i>						\$76		\$76
ABUSED DOLLARS	\$2,760	\$6,651	\$331	\$2,514		\$1,665	\$7,202	\$3,520
								\$9,393

[†] A complete reference list for this chart can be found on page 27.

pathological gambler implies that \$9,393 will have to be paid by the group each year.

The two primary ways that social cost numbers are estimated is through the study of pathological gamblers' histories and through statistical analysis of crime and other social cost statistics. Making conservative adjustments to reported costs – e.g., for the possibility that problem gamblers in treatment are not representative of problem gamblers in the population and for the issue of multi-causality (an alcoholic pathological gambler may incur higher social costs than a non-alcoholic pathological gambler) – reduces some of the numbers, but the reported social costs per pathological gambler remain.

WHY GAMBLING'S SOCIAL COSTS ARE "HIDDEN"

After testifying to a state legislative finance committee on the East Coast about the social costs of gambling, I was challenged by its chairman regarding the costs I had just enumerated. "I have been to Las Vegas and other gambling areas," he said, "and I did not see anything." My response was, "What did you expect to see?" Even the social costs of crime are usually hidden, as with silent embezzlement by an employee that goes on for years until it is discovered. But there are other reasons that the social costs of gambling – all quite real – might seem hidden.

For example, gambling industry representatives are fond of advertising the amount of taxes that their proposed casino or gambling project will pay. They treat this as a social benefit, and typically calculate their numbers from projected revenues. Never, or almost never, do they project the lost taxes that public coffers will experience when demand dollars are shifted away from other businesses. However, (as the calculation in the appendix shows) the taxes of all business matter to social costs and benefits. The lost taxes from other businesses become a *de facto* hidden cost.

A similar story applies to the other eight components of social costs. For example, the category of direct payments to problem gamblers appears second in the list of social costs and benefits. An addicted gambler who is subsequently fired and collects unemployment benefits or other social service payments imposes a cost on society that would not be present except for gambling. Since the budget that makes the outlay is relatively far removed from the cause, the social cost becomes another *de facto* hidden cost. The value of stolen assets would certainly be considered a social cost to the non-gambling public from which the assets might be taken, but no simple or reliable tabulation exists, making them hidden costs from the social perspective.

Being hidden obscures the true value of more than just costs. For example, what is the benefit of gambling? The second equation in the appendix says that the direct amenity value is the benefit of gambling. It is the amount of money that individuals would be willing to pay, if making payment provided them with the opportunity to gamble. This is not the amount of money that they would gamble away if given the opportunity, but rather the amount

they would pay *for* the opportunity.

The gambling industry often suggests that a benefit of gambling is the number of jobs that it creates. There are serious problems with this erroneous view. First, reporting the number of employees that a casino hires does not take into account the lost jobs at competing businesses to which gambling revenues would have gone. Worse, as the calculations in the appendix show, jobs nowhere appear in the list of social costs and benefits. They are a means to an end, but not an end itself. In other words, jobs matter to creating taxes paid, firm profits, and the other components of the second equation, but listing jobs as a benefit is double counting. The temporary exception might be a situation where the introduction of gambling reduced unemployment. However, because unemployment is a temporary phenomenon dependent on the business cycle, such a benefit would also be temporary.

No gambling industry document of which I am aware has estimated the effect of its proposal on prices and the profits of all businesses. Since the effect of casinos is often harmful to competing businesses – this has been especially true of restaurants in the vicinity of casinos, for example – these overlooked costs are effectively hidden costs.

CONCLUSION

Contrary to assertions often made by proponents of the gambling industry that the social costs of gambling cannot be identified and measured, it is possible to do both. The social costs of gambling are “hidden” only to the extent that they are misunderstood or overlooked. However, a framework grounded on the well-being and utility of members of society is available that produces an exhaustive and mutually exclusive listing of consequences. Working just from the list of social costs that have been empirically studied, one additional pathological gambler costs society \$9,393 annually.

APPENDIX: COST CALCULUS FORMULAS

This formula represents an individual’s well-being as a function of three components – amenities, public goods, and traded goods:

$$u_i = u_i[x_i^a, x_i^g, x_i]$$

where u_i is the utility for an individual i , x_i^a is the value of the amenity a for i , x_i^g is the value of the public goods g for i , and x_i measures the individual’s consumption of purchased commodities and services over a period time, typically a year.

Next, consider the least expenditure that the individual would need to achieve utility u_i when the amounts of the amenity and public goods are x_i^a and x_i^g respectively, and p_i is the list of prices facing individual i for the traded goods. We can represent the amount of money for this expenditure as:

$$e_i[x_i^a, x_i^g, p_i, u_i]$$

because it is a function of the amenity, the public goods, the cost of the traded

goods, and the utility for the individual. The primary understanding is that the amount an individual is willing to pay is directly related to the utility; that is, for fixed amounts of amenities, public goods, and prices for traded goods, this expenditure will rise or fall in a monotonic way with u_i . Given these assumptions, we therefore have a consistent dollar measure of changes in well-being that include amenities, public goods, and market commodities: an individual's level of well-being is measured by the number of dollars that it takes to achieve it. Social welfare is the sum of all such expenditures over the members of society and the change of social welfare from a change in question (e.g., the creation of a national park, or the introduction of a gambling operation) is:

$$\text{Equation (1)} \quad \Delta W = \sum_i \left(e_i [x_i^{a,1}, x_i^{g,1}, p_i^1, u_i^1] - e_i [x_i^{a,0}, x_i^{g,0}, p_i^0, u_i^0] \right)$$

The superscripts "0" and "1" refer to situations before and after the change in question. The key point is that all the superscripts are "1," except for the superscripts relating to utility, the change that we are measuring to define social costs and benefits.

Having progressed this far, it is a mechanical matter to rewrite equation (1) by keeping track of expenditures and budget constraints. Social costs and benefits can be written as a sum of terms that add to the total impact of a change in the economic environment. In most cases the terms are familiar, such as the effect on the profits of all businesses or the value that individuals place on the presence of the amenity. In cases where they are not, however, the terms are precisely described and have economic meanings that can be interpreted. Importantly, the terms are mutually exclusive and exhaustive of the impacts. They are listed below for the non-problem-gambling group A ($i \in A$). The problem-gambling group is group B ($i \in B$). Variables identified with a superscript 0 are associated with the pre-gambling situation, and those with a superscript 1 with the post-gambling situation that applies after a casino (the amenity x^a) has been sited. Once these are explained, we are ready to discuss the hidden costs.

$$\begin{aligned} \text{Equation (2)} \quad \Delta W_A &= \Delta W - \Delta W_B \\ &= \sum_{i \in A} \left(e_i [x_i^{a,1}, x_i^{g,1}, p_i^1, u_i^1] - e_i [x_i^{a,0}, x_i^{g,0}, p_i^0, u_i^0] \right) \\ &= \text{ Taxes Paid + Direct Payments to Group B} \\ &\quad + \text{ Value of Stolen Assets + Public Good Value} \\ &\quad + \text{ Direct Amenity Value + Consumer Surplus} \\ &\quad + \text{ Transaction Constraints + Firms' Profits} \\ &\quad \quad \text{and Capital Gains Accruing to Group A} \end{aligned}$$

This equation shows us that the social costs of gambling can be fully explained in eight terms and tells us what they are. The change in taxes

paid by the non-problem gambling public, for example, should be balanced against the direct amenity value they may receive from the introduction of a casino and any change in the level of public good (perhaps a road is improved or lengthened because of the casino). Possibly some of the impact of gambling takes the form of crime. If assets are stolen from group A members, their value is a social cost to the group. Likewise, if gambling leads to social payments (treatment costs, unemployment benefits, and related types of expenditures) caused by the introduction of gambling, these also enter. The mathematics tells us we must also account for changes in the profits and capital gains caused by gambling. If prices are altered in a favorable or unfavorable direction due to the introduction of gambling, this is picked up in the consumer surplus term that measures the social value of a change in prices. Finally, if gambling were to lead to unemployment—a failure of market clearing—this would appear in the transactions constraints term.

Consider the transactions constraint term; it takes the form:

$$\begin{aligned} \text{Equation (3)} \quad & \sum_{i \in A} (e_i [x_i^{a,1}, x_i^{g,1}, p_i^1, u_i^1] - \text{Expenditure on bundle } x_i^1) \\ & - \sum_{i \in A} (e_i [x_i^{a,0}, x_i^{g,0}, p_i^0, u_i^0] - \text{Expenditure on bundle } x_i^0) \end{aligned}$$

Consuming $(x_i^{a,1}, x_i^{g,1}, x_i^1)$ achieves utility u^1 . If the purchased bundle x_i^1 is not the cheapest way to achieve this utility, the difference is non-zero and the consumer's choice must have been constrained. How could this happen? For example, if the constraint is unemployment, the term says to measure the social cost of increased unemployment as the amount of money the individual would be willing to pay to remove the constraint. It is as if the consumer has been told to achieve the utility level u_i^1 , but must work fewer hours than they normally would choose, or they must work only at their second-best job. If there is no transaction constraint, the term is zero.

Likewise, equation (2) provides valuable guidance about how to measure the value of gambling. The direct amenity value term is

$$\sum_{i \in A} (e_i [x_i^{a,0}, x_i^{g,1}, p_i^0, u_i^0] - e_i [x_i^{a,1}, x_i^{g,1}, p_i^0, u_i^0])$$

where the only change between the differenced components is the quantity x^a . The value of the closer location would show up as a lower value for $e_i [x_i^{a,0}, x_i^{g,1}, p_i^0, u_i^0]$ since it would require fewer dollars spent to achieve the same utility when the amenity is present. The term therefore measures the amount of money an individual would be willing to give up in return for the presence of the amenity. If the amenity is the newfound ability to gamble, no ability to gamble would be equivalent to a gambling site that is an infinite number of miles away—the ability to gamble corresponds to situations where the sites to gamble are closer. In practice, how big this effect is can be inferred by observing how the amount of gambling varies with distance from the

service location⁵ in the same way that the value of reduced pollution has been inferred through observing how people's use of a swimming beach rises when, say, the water quality at the beach is cleaner.⁶

Amenity values, of course, can be positive or negative. If the social climate becomes fearful or unpleasant to residents because of increased crime, affecting their satisfaction from living in the area, the direct amenity value term says to measure the amount that residents would willingly give up to have the reduced crime environment. Surveys and other instruments are sometimes used to determine amenity values in these cases.

Finally, we can verify that the social costs and benefits related to consumer surplus (the advantage to a resident from an improved price system),

$$\sum_{i \in A} (e_i[a_i^1, x_i^{g,1}, p_i^0, u_i^0] - e_i[a_i^1, x_i^{g,1}, p_i^1, u_i^0])$$

take the standard form, helping to validate the approach.

REFERENCES FOR THE CHART ON PAGE 22

William N. Thompson, Ricardo Gazel, and Dan Rickman, "The Social Costs of Gambling in Wisconsin," *Wisconsin Policy Research Institute Report*, 9:6 (July, 1996), available online at www.wpri.org/Reports/Volume9/Vol9no6.pdf, accessed May 13, 2011.

William N. Thompson, Ricardo Gazel, and Dan Rickman, "Social Costs of Gambling: A Comparative Study of Nutmeg and Cheese State Gamblers," *Gaming Research & Review Journal*, 5:1 (1999), 1-15.

South Dakota Legislative Research Council, "Economic and Fiscal Impacts of the South Dakota Gaming Industry" (December 8, 1998) and attachment: Letter of January 7, 1999 to Mr. Terry Anderson, Director, South Dakota Legislative Research Council, Table "South Dakota Total Estimated Incremental Social Costs."

Timothy P. Ryan, et al., "Gambling in Louisiana: A Benefit/Cost Analysis," prepared for the Louisiana Gaming Control Board (April, 1999), available online at www.business.uno.edu/dber/gambling1998/index.html, accessed April 21, 2011.

Dean Gerstein, et al., "Gambling Impact and Behavior Study: Report to the National Gambling Impact Study Commission" (April 1, 1999), available online at cloud9.norc.uchicago.edu/dlib/ngis.htm, accessed April 21, 2011.

William N. Thompson and Frank L. Quinn, "An Economic Analysis of Machine Gambling in South Carolina," presented to The Education Foundation of the South Carolina Policy Council (May 18, 1999), available online at www.austgamingcouncil.org.au/images/pdf/eLibrary/1155.pdf, accessed April 21, 2011.

R. Keith Schwer, William N. Thompson, and Daryl Nakamuro, "Beyond the Limits of Recreation: Social Costs of Gambling in Southern Nevada," (2003), available online at <http://stoppredatorygambling.org/wp-content/uploads/Beyond-the-Limits-of-Recreation-Social-Costs-of-Gambling-in-Southern-Nevada.pdf>, accessed May 13, 2011.

NOTES

1 A public good, as opposed to a private good, is any good in which one individual's consumption does not limit the ability of other individuals to consume the same good. Of course, the degree of publicness varies, as when congestion effects (like a traffic jam on the narrow highway leading to the park) partially limit others from consuming the good.

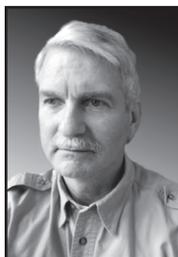
2 For a more in depth treatment of these social costs, see Earl L. Grinols, *Gambling in America: Costs and Benefits* (New York: Cambridge University Press, 2004), 24-26 and 136. Some researchers have added a tenth social cost called political costs which they define as disproportionate political influence resulting from the increasing concentration of economic power.

3 Other mal-adaptive gambling behaviors include repeated unsuccessful attempts to stop gambling, returning another day to win back losses ("chasing" one's losses), lying to family members or others to conceal the extent of one's gambling, and damaging significant personal relationships over one's gambling.

4 For example, from 1978 to 1988 Nevada ranked first in child death from neglect and abuse.

5 See Grinols, *Gambling in America*, and Earl L. Grinols, "Distance Effects in Consumption," *Review of Regional Studies*, 29:1 (1999), 63-76.

6 N. E. Bockstael and K. E. McConnell, "Public Goods as Characteristics of Non-Market Commodities," *Economic Journal*, 103 (September, 1993), 1244-1257.



EARL L. GRINOLS

is Distinguished Professor of Economics at Baylor University in Waco, Texas.