Chapter 5: Social And Economic Effects

The growth of legal gambling in the United States in recent decades has been fueled largely by increasing public acceptance of gambling as a form of recreation, and by the promise of substantial economic benefits and tax revenues for the communities in which the gambling occurs. There is no question that legalized gambling has brought economic benefits to some communities; just as there is no question that problem gambling has imposed economic and social costs. The important question, from a public policy perspective, is which is larger and by how much. Clearly, to address this and related policy issues, the economic and social costs of pathological gambling need to be considered in the context of the overall impact that gambling has on society.

The benefits are borne out in reports, for example, of increased employment and income, increased tax revenues, enhanced tourism and recreational opportunities, and rising property values (e.g., Eadington, 1984; Filby and Harvey, 1988; Chadbourne et al., 1997, Oddo, 1997). American Indian communities in particular, both on and off reservations, reportedly have realized positive social and economic effects from gambling "that far outweigh the negative" (Cornell et al., 1998:iv; see also Anders, 1996; Cozzetto 1995).

Gambling has also resulted in economic and social costs to individuals and families, as well as to communities, as discussed in this chapter. Such costs include traffic congestion, demand for more public infrastructure or services (roads, schools, police, fire protection, etc.), environmental effects, displacement of local residents, increased crime, and pathological or problem gambling. To the extent that pathological gambling contributes to bankruptcy and bad debts, these increase the cost of credit throughout the economy. We use the term "costs" to include the negative consequences of pathological gambling for gamblers, their immediate social environments, and the larger community.

As we said, the fundamental policy question is whether the benefits or the costs are larger and by how much. This can in theory be determined with benefit-cost analysis. Complicating such analysis, however, is the fact that social and economic effects can be difficult to measure. This is especially true for intangible social costs, such as emotional pain and other losses experienced by family members of a pathological gambler, and the productivity losses of employees who are pathological or problem gamblers. Beneficial effects can also be difficult to measure and, as with costs, can vary in type and magnitude across time and gambling venues, as well as type of gambling (e.g., lotteries, land-based casinos, riverboat casinos, bingo, pari-mutuel gambling, offtrack betting, sports betting).

Ideally, the fundamental benefit-versus-cost question should be asked for each form of gambling and should take into consideration such economic factors as real costs versus economic transfers, tangible and intangible effects, direct and indirect effects, present and future values (i.e., discounting), and gains and losses experienced by different groups in various settings (Gramlich, 1990:229). Moreover, the costs and benefits of pathological gambling need to be considered in the context of the overall effects that gambling has on society.[1] Unfortunately, the state of research into the benefits and costs of gambling generally, and into the costs of pathological gambling specifically, is not sufficiently advanced to allow definitive conclusions to be drawn. Few reliable economic impact analyses or benefit-cost analyses have been done, and those that exist have focused on casino gambling. Consequently, the committee is not able to

[1] The committee recognizes that the possibility of benefits deriving from pathological gambling are only theoretical and are neither described in the literature nor supported empirically.

shed as much light on the costs of pathological gambling as we would have preferred. We hope, however, that the chapter lays out the issues for readers and provides some guidance to researchers venturing into this area.

COSTS TO INDIVIDUALS[2]

As discussed in Chapter 2, the definition of pathological gambling includes adverse consequences to the individual, such as involvement in crime, financial difficulties, and disruptions of interpersonal relations. According to the criteria presented in the *Diagnostic and Statistical Manual of Mental Disorders* (DSM), a pathological gambler may be and often is defined by the presence of at least a few of these consequences (American Psychiatric Association, 1994). Discussions of the costs to the individual of pathological gambling would be circular if we claimed to "discover" these consequences. Instead, we focus on the magnitude and the extent to which pathological gamblers experience these adverse consequences.

The literature on individual costs of pathological gambling considers consequences for the gambler and those with whom the gambler has most frequent interactions, including family, friends, and close associates. The literature focuses primarily on crime, financial difficulties, and disruptions of interpersonal relations. Like the research on risk factors discussed in Chapter 4, because most of these studies are based on treatment populations with small samples and no controls, we urge caution when interpreting the results.

Many families of pathological gamblers suffer from a variety of financial, physical, and emotional problems (Abbott et al., 1995; Boreham et al., 1996; Lorenz and Yafee, 1986). The financial consequences of living with a pathological gambler can range from bad credit and legal difficulties to complete bankruptcy. Lorenz and Shuttlesworth (1983) surveyed the spouses of compulsive gamblers at Gam-Anon, the family component of Gamblers Anonymous, and found that most of them had serious emotional problems and had resorted to drinking, smoking, overeating, and impulse spending. In a similar study, Lorenz and Yaffee (1988) found that the spouses of pathological gamblers suffered from chronic or severe headaches, stomach problems, dizziness, and breathing difficulties, in addition to emotional problems of anger, depression, and isolation. Jacobs and colleagues (1989) compared children who characterized their parents as compulsive gamblers with those who reported their parents as having no gambling problems. Children of compulsive gamblers were more likely to smoke, drink, and use drugs. Furthermore, they were more likely to describe their childhood as unhappy periods of their lives.

Pathological gamblers are said to distance themselves from family and friends, who are alternately neglected and manipulated for "bailouts" (Cluster and Milt, 1985). The ultimate relationship costs to the gambler typically become manifest when the gambler reaches a stage of desperation or hopelessness. Lesieur and Rothschild (1989) found that children of pathological gamblers frequently reported feelings of anger, sadness, and depression. Bland and colleagues (1993) estimated that 23 percent of the spouses and 17 percent of the children of pathological gamblers were physically and verbally abused. These percentages vary somewhat across studies. Lorenz and Shuttlesworth estimated that 50 percent of spouses and 10 percent of children experienced physical abuse from the pathological gambler.

Research has not examined the nature and extent of the gambler's retrospective perception of losses with regard to children, friends, and family members. However, Frank and

[2] The committee expresses special thanks to Linda Nower for her synthesis and written presentation of literature pertaining to the social costs of pathological gambling to individuals, families, communities, and society.

colleagues (1991) have suggested that dysfunctional family relationships bear on a pathological gambler's tendency toward self-harm. As discussed earlier, as gambling progresses toward a pathological state, there is frequently a corresponding increase in depression, shame, and guilt. Research suggests that as many as 20 percent of persons in treatment for or diagnosed with pathological gambling may attempt suicide (Moran, 1969; Livingston, 1974; Custer and Custer, 1978; McCormick et al., 1984; Lesieur and Blume, 1991; Thompson et al., 1996). In a national survey of 500 Gamblers Anonymous members, those assessed as being at highest risk for suicide were more likely to be separated or divorced (24 percent) and to have relatives who gambled or were alcoholic (60 percent). About 17 percent of gamblers who considered suicide, and 13 percent of those who had attempted it, had children with some type of addiction.

FINANCIAL PROBLEMS AND CRIME

Financial losses pose the most immediate and compelling cost to the gambler in the throes of his or her disorder. As access to money becomes more limited, gamblers often resort to crime in order to pay debts, appease bookies, maintain appearances, and garner more money to gamble (Lesieur, 1987; Meyer and Fabian, 1992). Several descriptive studies have reported widely ranging estimates of the proportion of pathological gamblers who commit offenses and serve prison terms for such offenses as fraud, stealing, embezzlement, forgery, robbery, and blackmail (Berg and Kuhlhorn, 1994; Blaszczynsi and McConaghy, 1994a, 1994b; Lesieur and Anderson, 1995; Meyer and Fabian 1993; Schwarz and Linder, 1992; Thompson et al., 1996a, 1996b). Still, when gambling establishments come to economically depressed communities with high rates of unemployment, as is the case with riverboat casinos in Indiana, there may be, in addition to the costs, social benefits to providing job training and jobs to the previously unemployed.

Blaszczynski and Silove (1996) noted that criminal behaviors among adolescent gamblers may be more prevalent than among adult gamblers, in part because youths have few options for obtaining funds and greater susceptibility to social pressure among gambling peers. In the United Kingdom, Fisher (1991) reported that 46 percent of adolescents surveyed stole from their family, 12 percent stole from others, 31 percent sold their possessions, and 39 percent gambled with their school lunch or travel money.

Two studies attempted to assess theft by problem gamblers, one in Wisconsin (Thompson et al., 1996a) and one in Illinois (Lesieur and Anderson, 1995 (cited in Lesieur, 1998). These studies came to widely differing estimates of the magnitude of theft, probably because of methodological differences. In an Australian study (Blaszczynski and McConaghy, 1994a), most of the gamblers reported using their wages to finance gambling, supplemented by credit cards (38.7 percent), borrowing from friends and relatives (32.9 percent), and loans from banks and financial institutions (29.8 percent). This study did not provide a comparison, however, of differences between the financing of gambling and other household expenditures. In Canada, Ladouceur et al. (1994) found that, on average, the pathological gambler spent between $1,000 and $5,000 a month on gambling and used family savings (90 percent), borrowed money (83 percent), or both.

Another cost to the pathological gambler is loss of employment. Roughly one-fourth to one-third of gamblers in treatment in Gamblers Anonymous report the loss of their jobs due to gambling (Ladouceur et al., 1994; Lesieur, 1998; Thompson et al., 1996b). One study estimated that more than 60 percent of those surveyed lost, on average, more than seven hours of work per

month (Thompson et al., 1996b). In addition, the authors found that the average gambler costs employers more than $1,300 a month, and lost labor costs due to the unemployment totaled about $1,300 per gambler yearly.

Bankruptcy presents yet another adverse consequence of excessive gambling. In one of the few studies to address bankruptcy, Ladouceur et al. (1994) found that 28 percent of the 60 pathological gamblers attending Gamblers Anonymous reported either that they had filed for bankruptcy or reported debts of $75,000 to $150,000.

Published news accounts, bankruptcy court opinions, and bankruptcy attorneys serve as the primary reporters of the effects of gambling on bankruptcy. These accounts, however, are often region-specific, anecdotal, and poorly documented. In one such study (Ison, 1995a), the records examined suggested that 20 percent of all bankruptcies filed were gambling-related; of 105 gambling filers, the average gambler owed more than $40,000 in unsecured debt and possessed an average of eight credit cards with balances of $5,000 to $10,000 each; in total, the group owed about $1.1 million, exclusive of delinquent mortgages and car and income tax payments. Ison (1995b) reported that these gamblers cost one state (Minnesota) about $228 million annually.

In summary, although the research in this area is sparse, it suggests that the magnitude and extent of personal consequences on the pathological gambler and his or her family may be severe. These destructive behaviors contribute to the concern about pathological gambling, and the need for more research to understand its social cost to individuals, families, and communities.

ISSUES AND CHALLENGES IN BENEFIT-COST ANALYSES OF GAMBLING[3]

A wide variety of economic techniques is available to assess the effects of new or expanded gambling activities. What seems to be a straightforward task of identifying benefits and costs associated with legalized gambling and with pathological and problem gambling is really more difficult than it first appears. Not surprisingly, most reported economic analysis in the literature is methodologically weak. In their most rudimentary form, such studies are little more than a crude accounting, bringing together readily available numbers from a variety of disparate sources. Among studies of the overall effects of gambling, such rough-and-ready analyses are common. In the area of gambling, pathological gambling, and problem gambling, systematic data are rarely to be found, despite considerable pressure for information. The consequence has been a plethora of studies with implicit but untested assumptions underlying the analysis that often are either unacknowledged by those performing the analysis, or likely to be misunderstood by those relying on the results. Not surprisingly, the findings of rudimentary economic impact analyses can be misused by those who are not aware of their limitations.

When properly done, however, economic impact and benefit-cost analyses can be powerful policymaking tools. However, it requires an investment of time and money to operationalize, identify, measure, and analyze both benefits and costs. Many studies have identified the categories of benefits and costs associated with legalized gambling (e.g., Eadington, 1984; Chadbourne et al., 1997; Oddo, 1997). But most studies have focused on the benefits and costs to the community rather than those that accrue to individual gamblers and their families, or to other individual members or groups in the community. In fairness, this is

[3] The committee thanks Kurt Zorn for his written synthesis, analysis, and presentation of the literature in the remainder of this chapter.

probably attributable to the difficulty of measuring benefits and costs in complex areas like pathological and problem gambling. Analytic factors contributing to this difficulty are described below in general and later described in specific examples taken from the literature.

Real Versus Transfer Effects

One of the biggest stumbling blocks in economic impact analysis is determining which effects are real and which are merely transfers.[4] What appears to be a cost may in fact be a transfer from one person or entity in society to another. For example, when a person borrows money to take a trip involving social or recreational gambling, the money borrowed is not a cost to society. Rather, the person is transferring consumption from the future, when the debt will be repaid, to the present, in much the same way as when he or she borrows money to purchase a new car. Thus, money is transferred from the future to the present through a lender, who is willing to forgo present consumption when the loan is made, in exchange for future consumption when the loan is repaid with interest.

Conversely, there may be situations in which what appears to be a benefit is also a transfer. For example, the money spent by recreational gamblers at a casino is an indication of income generated in the community as a result of the casino. To the extent that the money comes from recreational gamblers who live in other communities, such money represents a real benefit to the casino and the community in which the gambling occurred. However, some of the money spent in the casino by local residents is not an economic benefit, but merely a transfer within the community. Had the casino not been in their community, some of the money local residents spend on gambling would probably have been spent on other locally available entertainment or recreation (e.g., going to movies or buying new sporting goods equipment) instead. In addition, some of the money spent on gambling may be paid to suppliers, as well as gambling establishment owners or investors from outside the community, in which case the benefits "leak" into other communities.

Transfer effects are notoriously difficult to identify. McMillen (1991), for example, provides an excellent discussion of some of the challenges associated with the identification and valuation of benefits and costs associated with casino gambling in Australia. McMillen points out that economic impact studies often fail to explain the potential for one expenditure to displace another. Construction and gambling expenditures often are treated as net additions to the community, but this is too simplistic an approach. The real question is what else might have been done with the resources used to construct the casino. If, for example, the construction dollars would have been spent elsewhere in the community had the casino not been built, then the construction expenditure is merely a transfer and not an influx of new dollars into the community.

McMillen further argues that the economic impact of a casino should be evaluated as one would evaluate a question of foreign trade. A casino may at first glance appear to benefit its community. But if it imports most of its supplies from outside the region and also sends its profits to owners outside the region, then there will be less benefit to the region than if suppliers and owners are local. McMillen (1991:88) also underscores the difficulty associated with identifying the direct costs and benefits of casinos. He contends that "the impact of the casinos on crime is impossible to disentangle from other factors which also may have affected changes in local criminal patterns (e.g., changing economic conditions, social attitudes, policing and judicial

[4] The category of transfer is often referred to as pecuniary in the economics literature.

practices, unemployment, cut-backs in social services). The committee's review of gambling research found that these complex cause-and-effect relationships have not yet been sorted out adequately in the empirical literature.

Direct and Indirect Effects

A casino will have both direct and indirect effects on an area's income and jobs. The direct effect represents a net addition to the community's resources. The direct effect of a casino, for example, is the income and employment associated with providing goods and services to its patrons--the wages casino employees earn are direct effects of the casino. Indirect effects refer to the secondary effects that casinos have on the community. For example, visitors to the casino may purchase gasoline from a local gas station, causing the station to hire another attendant. Casino employees will spend their paychecks in the local community, causing more business and more employment for grocery stores, clothing stores, and so forth. Both these direct and indirect effects, or primary and secondary effects as they are sometimes called, are appropriate to consider as benefits.

The most common approach to estimating indirect effects is by using an input-output model. These models are used to evaluate the economic development effects of many kinds of investments. By measuring the indirect ripple effect of a change in a regional economy, an input-output model recognizes that the outputs of one industry are often inputs to other industries, and that the wages that employees of one industry earn are spent on a variety of goods produced by other industries. Thus, changes in the activity of one industry, like a casino, affect both the casino's suppliers and its customers. Through this accounting-type framework, a change in the output, earnings, or employment level of an industry can be traced through the regional economy to determine its secondary effects. Input-output models are flexible enough to assess the effects of facility expansions, contractions, and closings (Richardson, 1972).

An input-output model works through the development of multipliers, which are a convenient way of summarizing these ripple effects throughout the economy. An employment multiplier, for example, captures all of the direct effects of the addition of a job to a particular industry in the local economy. Perhaps the most widely used input-output model was developed by the U.S. Department of Commerce's Bureau of Economic Analysis (BEA). The BEA developed the Regional Input-Output Modeling System (RIMS) model in the mid-1970s. In the mid-1980s, a major enhancement of the model was completed and the new model was designated as RIMS II. The RIMS II model is periodically updated (U.S. Department of Commerce, 1992). The multipliers supplied to the model by the BEA are created from extensive data on national and regional economies. Multipliers can be developed for the entire country, an individual state, an individual county, or a region comprised of a group of counties.

Input-output models have been used to evaluate the economic effects of new casino gambling facilities in a community and a state.[5] Three potential problems are often encountered when using these models to analyze gambling. First, because the expansion of casino gambling is so recent, the RIMS II model does not have casino gambling multipliers to apply to regions in which gambling is being introduced. This forces researchers to use other multipliers as proxies for gambling. Second, input-output analysis is best suited for modest changes to a community's economic structure. When a casino is introduced into a small community, as has often been the

[5] The Indiana Gaming Commission used input-output models to compare and evaluate the competing applications for riverboat gambling licenses.

case, it may bring major changes to the whole structure of economic activity in the community. When the change to a community's economic structure is significant, input-output models do not predict indirect effects well (Oster et al., 1997). Third, the model's estimate of indirect effects is based on the measurement of direct effects. If direct effects have not been measured properly, then those measurement errors will carry over to the estimate of indirect effects as well.

Tangible and Intangible Effects

Both the direct and indirect effects mentioned above are tangible, because they result in measurably more jobs and additional income being generated in the local economy. As mentioned at the beginning of this chapter, intangible benefits and costs are identifiable effects that are difficult or impossible to measure or to quantify in dollar terms. Intangible benefits and costs are usually omitted from consideration in gambling-related economic analysis studies--a clear shortcoming. However, as with many effects that have traditionally been considered intangible, such as various environmental effects, considerable progress has been made toward making them tangible. For example, construction of the casino facility may destroy a wetland. Under current federal law, this would require creating or expanding a wetland somewhere else in compensation. But, in many instances, the new wetland may not provide all of the functional benefits that the old wetland did and thus does not completely compensate for the loss. In the past, this would have been considered an intangible cost. Recently, however, the ability to measure and value wetland functions has improved, so this would now be a tangible cost. Improvements in the ability to measure benefits and costs formerly thought to be intangible has reduced the problem of including all of the costs and benefits, but they have not eliminated it. There remain intangible costs and benefits that still defy measurement.

Defining the Frame of Reference

A central issue critical to all economic impact studies is the frame of reference for the analysis (McMillen, 1991). Proper classification of benefits and costs as real or as transfers is contingent on defining what the community is--city, region, state, or nation. Consider, for example, a riverboat casino on Lake Michigan in northwest Indiana. As discussed earlier, the business of social and recreational gamblers coming to the riverboat from outside the community can be considered a benefit to the community. But what about social and recreational gamblers who live elsewhere in Indiana? The impact of their business can be considered a benefit to the community with the casino but not to the state. The state does not benefit from having less money spent in one community and more spent in another. A similar question can be raised about social and recreational gamblers who come to the Indiana riverboat from Illinois. Their business is a benefit to the riverboat's community and the state of Indiana, but from a national perspective it is simply a transfer from one state to another. Thus, what the analyst considers a benefit (or cost) and what is considered a transfer depends on the geographic region chosen for the analysis.

Identifying and Measuring Costs: An Example of Unpaid Debt

When one measures the economic effects of pathological and problem gambling (Lesieur, 1989, 1992, 1998), financial costs such as debt, insurance, medical, work-related, and criminal

justice costs are fairly easy to measure. However, measuring intangibles, such as the effects of pathological or problem gambling on children and the family structure, poses more difficult challenges. In addition, the consequences of pathological gambling may be caused by other, less harmful forms of gambling (e.g., problem gambling). Correctly identifying and measuring even the tangible costs is an involved process, one that many do not fully appreciate.

Consider, for example, the treatment of gambling debt. Lesieur relates that the debt incurred by problem gamblers in New Jersey has been estimated to be over $500 million dollars per year (Lesieur, 1992). This estimate is based on the assumption that the average debt incurred by problem gamblers in treatment is the same as the average debt of those not in treatment. This average debt is then multiplied by the estimated number of problem gamblers in New Jersey, which is, in turn, based on estimates of the prevalence rate of problem gambling among adults in the state multiplied by an estimate of the number of adults in New Jersey.

Three problems appear in this analysis. First, the assumption that the debt of those in treatment is the same as those not in treatment is a strong assumption that has not been tested empirically. It seems possible, even likely, that this assumption will bias the overall estimate upward. Notwithstanding the fact that some pathological gamblers seek treatment even while winning, it can be argued that those who seek treatment generally are worse off financially and therefore have amassed larger debts than those not in treatment. A counterargument might be made that the total debt does not include all the transaction costs associated with indebtedness and bankruptcy and thus the estimate is understated. But this is really an argument for a more complete measurement of debt, rather than an argument for the doubtful proposition that the best way to compensate for one bias of unknown magnitude is to introduce another bias of unknown magnitude in the opposite direction. And, of course, the total indebtedness estimate is only as good as the underlying estimate of the statewide prevalence rate. All too often, studies use prevalence estimates that have been taken from other studies and do not represent prevalence rates directly estimated for the state or community under study.

The second problem is that this indebtedness estimate is the total debt that problem gamblers incur rather than the incremental or additional debt incurred by problem gamblers relative to the rest of the population. Even if the $500 million estimate indeed is a sound estimate of the total, it is not the right number to use in the analysis. People who do not gamble have debts as well. This means that the analyst needs to know the average indebtedness for those who are not problem gamblers as well as for those who are. This estimate for nongamblers then needs to be multiplied by the number of problem gamblers in the state to determine the total amount of debt that could be expected under typical circumstances for this group if they were not problem gamblers. Finally, the estimate of total indebtedness for problem gamblers minus the total indebtedness that could be expected from the same size population that is demographically similar but is not problem gamblers will provide an estimate of the incremental or additional debt that is due to problem gambling. The issue is how much more debt is incurred because of problem gambling, not how much debt problem gamblers incur.

The third problem is the transfer issue. As discussed earlier, consumer debt is a means of transferring consumption from the future to the present. There is no cost to society if a consumer borrows $100 one month and pays it back in the next. People do this all the time when they borrow money to purchase cars or take vacations and then do not to pay off their bills in full at then end of the month. As with other consumption activities, so with gambling. Does the additional debt incurred because of problem gambling represent a real cost to society, or is it merely a transfer, a temporary redistribution of money from one group in society (lenders) to

another (borrowers), which in due time will be undone by repayment of the debt? In economic impact analysis, only that portion of the incremental debt that is unrecoverable due to bankruptcy or nonpayment should be considered a real cost to society (along with the transaction costs associated with the indebtedness, such as bankruptcy proceedings, civil court actions, and the like). Even then, all of that debt may not be attributable to problem gambling. It is likely that some problem gamblers would have defaulted on their debts even if they had not been problem gamblers.

Many of the criticisms leveled at research on the identification and measurement of total debt for problem gamblers can be leveled at research on other costs associated with problem gambling. First, it is not sufficient to describe the characteristics of problem gamblers under treatment and assume they are representative of the entire population of problem gamblers. More effort must be made to determine whether the chosen subsample is representative. Second, a control group of people who are not problem gamblers but who have similar demographic characteristics must be identified, and similar costs estimated for the control group to assist in the determination of the incremental or additional cost introduced by problem gambling. Without this control group and the associated estimate of their costs, the estimated costs for the problem gamblers represent the gross attributes of the problem gambler population, rather than the incremental effect of problem gambling.

Finally, a very difficult problem arises when assessing the costs of problem gambling. Lesieur and others point out that there is a strong correlation between problem gambling and other addictive behavior, such as alcohol and substance abuse (Lesieur, 1992). Thus, some of the problems observed in problem gamblers may be caused not by problem gambling but by (for example) alcoholism. Problem gambling may be a symptom of other underlying disorders that would show up in other ways if legalized gambling were not available. A relevant question to ask is whether, in the absence of legalized gambling, a problem gambler would have engaged in some similarly destructive and costly addiction, such as alcoholism. To the extent that the answer is yes, the costs associated with that individual's gambling problem are not additional costs to society. They represent transfers of costs from one problem category to another.

Clearly the task of identifying and measuring the costs of problem gambling is far from a straightforward exercise. Even those effects that appear, at first glance, to be direct and tangible costs may, on closer investigation, be overstated or merely transfers. The need to engage in much more research in the area of identifying and estimating the impacts of problem gambling should come as no surprise. There appears to be a dearth of literature dealing with the careful study of the economic and social effects of both casino gambling and gambling in general (Federal Reserve Bank of Boston, 1995).

ASSESSMENT OF STUDIES MEASURING THE COSTS AND BENEFITS OF GAMBLING[6]

Although there are studies that purport to investigate the economic effects of gambling, few show the careful, thorough efforts that are needed to estimate the actual net effects of gambling on society, and therefore few have made a real contribution to understanding these issues (e.g., Ricardo, 1998). In general, economic impact studies fall into three groups. The first group of studies, gross impact studies, tends to focus on only one aspect of the issue (e.g., positive economic effects) and therefore fails to provide a balanced perspective. A second

[6] The committee thanks Rina Gupta for her investigation and written summary of state-level lottery and gambling commission reports.

group, descriptive studies, provides little more than descriptions that suggest what needs to be done to identify benefits and costs. A third group of studies, balanced measurement studies, attempt to provide a balanced analysis of the net effects of gambling. Studies in these groups range in quality and contribution, demonstrating an evolutionary developmental path, especially in their attention to the costs of pathological and problem gambling. Earlier studies tend to rely heavily on third-party calculations to arrive at their estimates of the costs of problem gambling. Later studies actually build such estimates from scratch. Each group of studies is examined in more detail below.

Gross Impact Studies

Gross impact studies focus on a single aspect of economic effect. They generally do not pretend to provide a balanced perspective of gambling's effects. Typically, most emphasis is placed on identifying and quantifying economic benefits, with little effort placed on the identification of costs. In their most basic form, this kind of study provides a simple accounting of the aggregate effects of gambling, covering items such as casino revenues and expenditures, number of jobs created, and taxes paid. They do not try to consider expenditure substitution effects or to be explicit about the geographic scope of the analysis. They also typically ignore the distinction between direct and indirect effects, tangible and intangible effects, and real and transfer effects (Fahrenkopf, 1995; Meyer-Arendt 1995).

A slightly more sophisticated form of gross impact analysis involves the use of input-output analysis to capture the both direct and indirect effects associated with gambling. The first step involved in capturing direct and indirect effects is to measure the final demand for the gambling industry. In the case of casino gambling, final demand is determined by examining the casino's employment expenditures, its capital investment outlays, the goods and services it purchases in order to operate, and the taxes it pays. In essence, final demand is the flow of dollars from the casino business to households, other businesses, and government (Illinois Gaming Board, 1996). Multipliers derived from input-output models are then used to estimate the ripple effects of the casino's expenditures through the community.[7] However, if the study fails to consider substitution of expenditures and leakage outside the local economy, use of the input-output technique can overstate the economic impact (Anders, 1997; Hewings et al., 1996, 1998).[8]

The most sophisticated gross impact studies painstakingly attempt to measure the net positive economic effects of casino gambling without considering the full range of costs. These studies estimate the substitution of expenditures and the leakage of direct gambling expenditures that occur in an economy, along with the ripple effect that these expenditures have on the economy. An excellent example of this type of analysis is a study that looked at the economic effects that casinos have had in Illinois and Wisconsin (Thompson et al., 1996b). The authors constructed what they refer to as a monetary impact model using a detailed input-output analysis of each gambling jurisdiction in the two states. Not only did the researchers collect gambling operation expenditures and revenues, but they also determined the locations of the recipients of the gambling expenditures, which allowed them to ascertain what portion of the monetary flows

[7] Because there is no specific multiplier for the gambling industry, the entertainment and recreation sector multiplier often is used as a proxy because gambling is contained in this Census Bureau category.

[8] Hewings et al. (1996) acknowledge that these are analyses of the gross impacts and do not attempt to consider those things that would reduce the gross impact.

came from and went to the local area, to other areas of the state, and out of state. The result was a set of estimates of the positive and negative monetary effects of casino gambling in both Illinois and Wisconsin. This, in turn, provided a good estimate of the positive effects of casinos in the two states.[9]

Descriptive Studies

A second set of studies generally emphasizes description over analysis. The emphasis in these studies tends to be on simple identification of benefits and costs associated with gambling, with limited emphasis on estimating their value (Aasved and Laundergan, 1993; Aasved et al., 1995; Stokowski, 1996). When an attempt is made to discuss economic effects, especially the social costs associated with problem gambling, the estimates are taken directly from other studies, without any independent analysis or attempts to determine whether the results of other studies are applicable in the situation under investigation (Grinols, 1995).

Balanced Measurement Studies

Balanced measurement studies encompass a variety of economic impact analysis studies. Although these studies differ in their approaches and vary in their contributions to advancing gambling-related economic impact analysis, they all emphasize the identification and measurement of costs, including costs related to pathological and problem gambling. They also reflect a discernible evolution in the methodology used to arrive at impact estimates, beginning with a heavy reliance on earlier work and slowly moving to a more innovative approach. The strength of these studies precludes them from being relied on for policymaking, but it may not be long before useful studies are available. The six studies described exemplify the application of methodological considerations described above, as well as the progression of economic impact analysis in the field of pathological gambling.

Chicago Study

This study assessed the effects that additional problem gamblers would have on Chicago with the introduction of casino gambling. Whenever possible, the authors assigned monetary values; when they could not, they at least discussed the costs that they could not quantify. Rather than building their cost estimates from scratch, the authors relied on previously published estimates of prevalence rates and gambling costs from other sites to estimate likely costs for Chicago (Politzer et al., 1981).

There is nothing inherently wrong with relying on estimates derived from other studies, as long as the estimates are appropriate for the task at hand. The analysts must understand the size, structure, and the composition of the sample that was used to arrive at the estimate; they must clarify the assumptions underlying the calculations, along with the influences the assumptions may have on the estimates; and they must determine if the characteristics of the source community are sufficiently similar to that of the subject community to allow the use of the estimates without reservations or adjustments. Unless these conditions are satisfied, the resultant estimates may be of questionable value.

[9] The authors were careful to point out that their analysis dealt only with the benefit side of the equation.

There is no evidence that the Chicago study attempted to consider whether the estimated costs and prevalence rates borrowed from other studies were appropriate to Chicago. In addition, the authors do not appear to have tried to separate real costs from transfer costs, nor did they try to estimate aggregate problem gambling costs rather than incremental costs due to problem gambling.

U.S. National Assessment

In a study that strays from traditional economic impact analysis, Grinols and Omorov (1995) attempted to determine, using benefit-cost analysis, whether improved access to casino gambling offsets the externality (or spillover) costs associated with problem gambling. Their study takes a unique approach to the estimation of the net economic effects of gambling. Instead of focusing on a particular geographic area, as most economic impact studies do, they attempted to estimate the effect of increasing gambling accessibility nationwide. They define externality costs as criminal justice system costs, social service costs, and costs due to lost productivity. In order to estimate the per capita social costs due to problem gambling, they relied on the annual cost estimates per problem gambler and prevalence rates for problem gambling computed in earlier studies (Goodman, 1994; Lorenz et al., 1990; Politzer et al., 1981). They do not, however, further the understanding of what constitutes the costs of problem gambling nor the magnitude of these costs. Instead, Grinols and Omorov relied on the work done by others to assign dollar values to the externalities and used these estimates without any attempt to determine whether the estimates were appropriate for the task at hand.

South Dakota Study

In a study that attempted to identify the benefits and costs associated with gambling, Madden (1991) looked at the socioeconomic costs of gambling in South Dakota. The analysis--a simple time series analysis of data for identified benefits and costs--represents one of the first attempts to determine whether some of the alleged costs associated with pathological and problem gambling were appearing in communities that were adopting or expanding legalized gambling. Madden does not specifically consider the costs of pathological and problem gambling but does analyze trends in factors that often are cited as being affected by such gambling, including the number of recipients of Aid to Families with Dependent Children, the number of families receiving food stamps, the number of child abuse and neglect cases, the number of child support cases, the number of divorce filings, the percentage of property taxes that are not collected, the number of bankruptcy filings, the number of small claims filings, and the number of real estate foreclosures.[10] He concluded that there does not appear to be any correlation between the increased availability of gambling and these socioeconomic indicators.

This study raises another potentially difficult problem with gambling studies. When gambling is introduced to an area, there is a natural temptation to do simple before-and-after comparisons and to attribute (positive or negative) differences to the introduction of gambling. In other words, the effects of gambling are deemed to be any changes that have occurred since gambling was introduced. But this is not necessarily true. For example, if per capita income is

[10] Problem gambling has been linked to these factors, and one would expect problem gambling to be on the rise in South Dakota due to the spread of legalized gambling. Therefore a worsening in one or more of these factors may suggest that at least part of the costs are due to problem gambling.

found to be higher after gambling was introduced, is the rise in income attributable to gambling? Perhaps it is, but perhaps not. Per capita incomes have typically been rising in the United States, so perhaps some of the gain is due simply to general economic growth. Perhaps other things happened in the community that would increase per capita income. During the same period in which per capita incomes were found to rise in the community in which gambling was introduced, per capita incomes may well have also risen in communities in which gambling was not introduced. Similarly, if personal bankruptcies increased following the introduction of gambling, the analyst would also need to know what the trend in personal bankruptcies was elsewhere and during the same time period before attributing the increase to increased gambling availability.

Florida Study

A Florida study of the effects of casino gambling represents an improvement in the identification and estimation of the benefits and costs of pathological and problem gambling (Florida Office of Planning and Budgeting, 1994). Its derivation of the net positive benefits considered the direct and indirect effects that casinos will have on the state economy, carefully considering expenditure substitution and leakage to ensure that the focus is on additional spending associated with the casino and not some measure of gross economic activity.

To estimate the costs associated with pathological and problem gambling, the study relied on an estimate calculated by Volberg (1994) of $13,600 on average per pathological or problem gambler. Rather than accept the Volberg estimate without question, the researchers examined circumstances specific to Florida to ensure that the estimates were appropriate. This was accomplished by estimating the incarceration, supervision, and new prison construction costs that would be attributable to problem gambler criminal incidents, using Florida Department of Corrections data. These estimates indicated that Volberg's annual societal cost figures were reasonable to use for estimating potential impacts in Florida.

In order to determine the increase in pathological and problem gamblers that would result from casino gambling, the study also relied on estimates generated from three different sources, rather than adopting without question a prevalence rate generated for a different single community. The three estimates are based on: (1) the projected market share that casinos would command in the legalized gambling market in the state, (2) a number derived from experiential data provided by the Florida Council on Compulsive Gambling, and (3) a figure based on information provided by the National Council on Compulsive Gambling. The estimates for increased numbers of pathological and problem gamblers were multiplied by the estimated social cost per such gambler to arrive at total net cost estimates of $3.8 billion, $3.22 billion, and $2.72 billion. Subtracting the estimated net positive effect of casino gambling-- $536 million--the study concluded that the net cost of casinos in Florida would range from $2.16 to $3.25 billion.

The Florida study cost estimation methodology is noteworthy because, although the study relied on per gambler estimates calculated for another jurisdiction, it first assessed the appropriateness of applying that estimate to Florida. In addition, the study used three prevalence estimates derived from three communities rather than relying on a single generic estimated prevalence rate. Taken together, the per pathological gambler cost estimate and the three prevalence estimates enabled the analysts to provide a range of costs attributable to pathological gamblers if casinos were approved in Florida.

Unfortunately, the study was based on several key but untested assumptions that may have had the effect of overestimating costs associated with pathological and problem gambling and minimizing the benefits of casino gambling. Specifically, the researchers advance a conservative estimate of new tourism and also assumed that Florida would experience substantial substitution effects in the food and recreation industries if casino gambling were approved. Closer examination also reveals that, in relying on the Volberg (1994) cost to society estimate per pathological or problem gambler, the state adopted her reliance on the estimate by Lesieur and Klien (1985) that two out of three pathological or problem gamblers become incarcerated or otherwise impose substantial criminal justice costs--an assumption not independently tested.

Australian Study

A significant improvement in the methodology used to identify and estimate the social costs of gambling, and specifically pathological and problem gambling, is found in a study conducted in Australia (Dickerson et al., 1995). This study apparently is one of the first studies to perform a comprehensive and carefully thought-out economic impact analysis of gambling.[11] The study is based on what is referred to as a doorknock, or house-to-house, survey. The survey provides extensive information about patterns of gambling in New South Wales, attitudes toward gambling, gambling preferences, and information relating to the negative effects associated with problem gambling, among other things. The study details the approach taken to estimate the prevalence of problem gambling. Clearly, the researchers carefully considered the appropriateness of their estimate for the subject community, not choosing to rely on estimates developed elsewhere. To identify the costs associated with problem gambling, the researchers used information from their survey and from their own clinical databases. Once the identification phase was completed, they used the following methodology to place a dollar value on as many of the costs as they could (pp. 57-58):

- "the cost of impacts is undertaken from a community perspective. Personal costs, which involve a transfer of money between different sectors of the economy, without impinging on economic activity (such as the stock of debts owed by gamblers), are not included

- prevalence was estimated either from the survey results or, where more appropriate, from the clinical databases available

- responses to survey questions were grouped and directly linked to impacts where appropriate

- the team's professional judgment was used to decide whether the survey results or incidence from clinical databases were used as the basis for costings

[11] The reason for a lack of precision regarding whether this indeed is the first study of its type is attributable to information provided in another study, A Study Concerning the Effects of Legalized Gambling on the Citizens of the State of Connecticut (report prepared for the Division of Special Revenue, Department of Revenue Services, State of Connecticut, June 1997). This study refers to five noteworthy studies that have been conducted in this area: a 1994 study in Quebec, a 1995 study in Germany, a 1995 study in Illinois, a 1995 study in Australia, and a 1996 study in Wisconsin. Only the last two studies were obtained by the committee, leading to uncertainty as to whether the Australian study is the first or one of the first studies to undertake this approach to the estimation of problem gambling costs.

- the incidence of each impact was converted to annual cases per annum for the [New South Wales] adult population. . .

- costing assumptions were then sourced or estimated for each impact and applied to the prevalence data. . . .It should be added that we have been conservative in our costing assumptions, where data on which to base assumptions [have] not been readily available."

The study was able to "cost out" a number of factors associated with problem gambling. The effects of gambling on employment, consisting of job change costs, unemployment, and productivity loss, were estimated at A$27.8 million annually.[12] The largest component of this estimate was productivity loss, accounting for almost A$20 million, followed by A$5.2 million for job change and A$2.7 million for unemployment.

The process used to arrive at the productivity loss estimate shows the care the researchers used as they developed their cost estimates. They looked at data from both the survey and the clinics to identify employment-related costs and the extent to which problem gamblers were affected. On the basis of these data, the productivity loss estimate was derived using an assumption that one hour per week was lost per problem gambler, an estimate of the number of problem gamblers affected, the average earnings earned, and the percentage of individuals in the workplace versus the home. The authors also were careful to underscore how sensitive the estimate is to the assumption regarding average time lost at work.

A second factor associated with problem gambling in the study is legal costs. Legal costs were separated into court costs, estimated at an annual cost of A$5.6 million; prison costs, estimated at an annual cost of approximately A$9 million; and police costs, estimated at an annual cost of A$2.6 million. The total estimate of legal costs emanating from problem gambling in New South Wales was approximately A$17.2 million.

Although an estimate is included for family and individual costs, the researchers note that many of the family-related effects identified do not lend themselves to quantification because it would involve a very subjective process. As a result, only two family and individual effects are given a dollar value: the costs of divorce proceedings and acute treatment costs.[13] Total family and individual costs amounted to A$0.7 million, with A$300,000 coming from divorce proceedings and A$455,000 from acute treatment. Financial impacts on the family and the individual due to problem gambling are estimated by determining the dollar amount of business and personal bankruptcies, estimated at A$65,000. Finally, the researchers costed out the value of existing services that are provided for problem gamblers and their families, which are estimated at slightly less than A$2.3 million per year.[14]

The total cost associated with pathological and problem gambling was estimated at A$48.1 million per year, or A$9.70 per capita among the adult population in New South Wales. This estimate is compared with the A$2.9 billion in net benefit introduced by gambling in New South Wales. The methodology used by the researchers to reach this estimate of net positive effect involved the use of input-output multipliers, carefully adjusted for substitution of expenditures and leakage. It is noted that the costs amount to 1.6 percent of the estimated

[12] Because this study was conducted in Australia, the monetary amounts presumably are in Australian dollars.
[13] The acute treatment incidence was based on reported suicide attempts, taken from the clinical database.
[14] The authors are quick to note that this estimate does not include any additional costs that may be incurred due to the need for additional services in the future.

positive effects. However, the authors are quick to note that they use conservative costing assumptions and that a number of the effects identified are not assigned dollar values. The net economic benefit is therefore likely to be overstated.

Wisconsin Study

A second study that makes a significant contribution to the literature on the economic impacts of gambling is one that identifies and quantifies the social costs of gambling in the state of Wisconsin (Thompson et al., 1996a). The authors point out that there is little objective information about the benefits and costs associated with gambling, much less the costs of pathological and problem gambling, but that many studies have offered opinions about the effects such gambling has on society. "However, for the most part, we have only seen attempts either to list all the cost factors without analysis, and without totaling up the effects, or we have seen concluding numbers without any indication of how the numbers were determined" (Thompson et al., 1996a:13).

The approach taken by these researchers to arrive at estimates of the costs of pathological and problem gambling involved using a survey instrument to get information from serious problem gamblers in Wisconsin (Thompson et al., 1996a). They distributed questionnaires to members of Gamblers Anonymous chapters and received 98 completed surveys. The questionnaires provided the researchers with demographic data on the respondents, gambling histories, information about some of the games they played, volume of gambling activity and the source of funds, and the consequences of gambling. The authors used the information obtained from the survey to attempt to answer the following questions: (1) How much does one serious problem gambler cost society? (2) How much do the serious problem gamblers of Wisconsin cost Wisconsin society? (3) What are the societal costs of having casinos in Wisconsin?

To answer these questions, they used information from their survey as well as information provided by earlier research on the costs of problem gambling. They chose to focus on employment costs, bad debts and civil court costs, thefts and criminal justice system costs, therapy costs, and welfare costs. They calculated the costs for all problem gamblers in the state and for a subset of problem gamblers who could be associated with the state's American Indian casinos. Employment costs included both the annual cost of working hours lost due to gambling plus the unemployment compensation attributable to gambling. It was estimated that the annual cost of lost working hours amounted to $1,330 per problem gambler for all problem gamblers in the state, and $1,390 per problem gambler for those who gambled at American Indian casinos. Annual unemployment compensation costs were calculated as $210 for all problem gamblers and $120 for the casino gamblers.

Estimates of the loss in productivity due to gambling were based on how many hours of work the gambler lost due to unemployment. The researchers chose to use this measure rather than attempt to estimate the loss of productivity on the job, which they thought involved too much subjectivity. The estimates for annual loss in productivity amounted to $1,400 for all gamblers and $1,330 for casino gamblers. Adding these estimates together provides a total employment cost estimate of $2,940 for all gamblers and $2,840 for casino gamblers. Bad debts were calculated by focusing on the debt burden of the problem gamblers in the study who were involved in bankruptcy court proceedings. These individuals had an average debt of $8,910. It was assumed that society lost half of these debts, with an annualized value of $1,490 for all gamblers and $2,130 for casino gamblers. Thompson et al. (1996a) note that these are very

conservative estimates because they looked only at those who declared bankruptcy and accounted for only half of their debt. In reality, it is likely that many problem gamblers will ultimately pay little of their debts.

Annual criminal justice costs include a number of factors, including bankruptcy court costs, estimated at $330 for all gamblers and $510 for casino gamblers; the cost of civil cases, estimated at $510 for all gamblers and $530 for casino gamblers; the cost of criminal cases, estimated at $370 for all gamblers and $510 for casino gamblers; the cost of probation, estimated at $190 for all gamblers and $190 for casino gamblers; the cost of imprisonment, estimated at $1,160 for all gamblers and $760 for casino gamblers; and the cost of arrests, estimated at $50 for all gamblers and $40 for casino gamblers. Summing the estimates for these factors led to estimates of $2,610 for all gamblers and $2,550 for casino gamblers for annual total police and judicial costs. An additional criminal justice cost, the cost of thefts, was estimated at $1,730 for all gamblers and $1,670 for casino gamblers. These estimates were combined with the bad debt estimates to provide the estimates for the annual total bad debt and theft-related costs per gambler.

Thompson et al. (1996a) estimated therapy costs as $360 for all gamblers and $440 for casino gamblers based on the assumption that half of the costs were individual and half would be borne by society. Estimates for additional costs due to gambling amounted to, for food stamps, $100 for all gamblers and $140 for casino gamblers and, for Aid for Families with Dependent Children, to $230 for all gamblers and $360 for casino gamblers. Total health and welfare-related costs therefore amounted to $700 for all gamblers and $920 for casino gamblers. Even this study, however, is not without serious flaws and often counts as benefits things that would properly have been considered transfers. Nevertheless, this study is an important improvement over many previous ones.

The researchers compare their estimates of the annual total social costs for the state of Wisconsin due to problem gambling--$307 million for all gamblers including $138 million for casino gamblers to estimates of the net positive effects of gambling activities estimated in an earlier study (Thompson et al., 1995). That study determined that the state of Wisconsin experienced an annual economic gain of $326 million from gambling activities and related expenditures at or near the 17 casino sites. Combining the two estimates for the positive impact and the negative impact associated with casino gambling ($326 million and $138 million, respectively), social costs represent about 42 percent of the economic gain, and the net economic impact on the Wisconsin economy due to casinos is approximately $188 million.

Thompson et al. argue that their estimates of the social costs of problem gambling are conservative but realistic, although others have suggested the estimates are too high (see Wlaker and Barnett, 1997). Thompson et al. point out that the calculations are based on information obtained from the survey of problem gamblers and other outside sources. In addition, they are careful to identify the assumptions and methodology used in the calculations, something most previous studies failed to do. The researchers underscore the intentional conservatism of their analysis (Thompson et al., 1996a:26):

> We wish the information we present to be useful for policy makers, so we have carefully avoided adding numbers into the formula where we felt that we could not reasonably make good assumptions and good estimates of the costs. Nonetheless, we suspect that the areas not considered do represent social costs, and these may be revealed in more refined studies in the future. Some areas where costs must exist, but were not considered,

include the lower productivity on the job, family disorganization, and bad debts by those who do not declare bankruptcy.

Thompson et al. (1996a) acknowledge the estimate of productivity loss used in the Chicago study by Politzer et al. (1981) but do not use it because they found it unreasonable. Because they did not have sufficient information themselves to make a reasonable estimate, they chose to not make one.

CONCLUSIONS

Despite the recent improvements made in the estimation of the benefits and costs of gambling, this area of inquiry is still in its infancy. A very few studies have recently made large strides over the contributions of earlier studies, which generally focused only on the positive economic benefits or provided descriptions of the cost factors associated with pathological and problem gambling, but did not attempt to estimate the costs of gambling, much less the costs of pathological and problem gambling. Still, benefit-cost analysis of pathological and problem gambling remains undeveloped.

In most of the impact analyses of gambling and of pathological and problem gambling, the methods used are so inadequate as to invalidate the conclusions. Researchers in this area have struggled with the absence of systematic data that could inform their analysis and consequently have substituted assumptions for the missing data. The assumptions adopted for specific studies were rarely examined or tested to ensure they were appropriate for the specific research being conducted. There is always the risk that such assumptions and resulting estimates may reflect the bias of the analyst rather than the best-informed judgment. Critical estimates have been frequently taken from one study and haphazardly applied in different circumstances. Often, the costs and benefits were not properly identified so that things that should have been counted as costs or benefits were omitted and other things that should have been omitted were counted. Even when these limitations were recognized by the authors, they were rarely acknowledged.

Clearly there continues to be a need for more objective and extensive analysis of the economic impact that gambling has on the economy. Although the methodology to estimate the net positive effects is fairly well developed, substantial work needs to be done on the cost side. It is especially important to focus on the effects that are associated with problem gambling. The task will not be easy and the effort will be costly and time-consuming. The Australian and Wisconsin research studies have set the stage for others by outlining the process that needs to be followed and by showing how such studies should proceed. These studies do have their limitations, however. For example, more attention could have been focused on ensuring that the costs being estimated are real costs and not just transfers. But they provide a framework so that others can replicate their findings and to advance knowledge about the costs of problem gambling.

Other important issues remain unexplored. One issue is the question of how important the problem gambler is to the gambling industry's financial health. A casual look at the casino industry suggests that this is an industry with high fixed costs and very low marginal costs to serve an additional patron. If that is indeed the industry's cost structure, then very little additional revenue can result in substantial increases in profits. By the same token, a small decrease in revenue can result in a substantial decrease in profits. Thus, even if problem

gambling proves not to be very prevalent in aggregate terms, it could still have a substantial influence on industry profits. Another unexplored issue is to what degree the findings on the economic impact of casino gambling apply to other forms of gambling. As this chapter indicates, most of the research deals with casinos. We know little about the economic impact of other forms of gambling. Finally, few of the studies on the economic impact of gambling to date have appeared in peer-reviewed publications. Most 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.

REFERENCES

Aasved, M.J. and J.C. Laundergan
1993 Gambling and its impacts in a Northeastern Minnesota commmunity: An exploratory study. Journal of Gambling Studies 9(4): 301-319.

Aasved, M.J.
1995 Legalized gambling and its impacts in a central Minnesota vacation community: A case study. Journal of Gambling Studies 11(2): 137-163.

Abbott, D.A., S.L. Cramer, and S.D. Sherrets
1995 Pathological gambling and the family: Practice implications. Families-in-Society 76 (4): 213-219.

American Psychiatric Association
1994 DSM-IV: Diagnostic and statistical manual of mental disorders. (4th ed.). Washington, D.C.: Author.

Anders, G.C.
1997 Estimating the Economic Impact of Indian Casino Gambling: A Case Study of the Fort McDowell Reservation. Reno: Institute for the Study of Gambling and Commercial Gaming, University of Nevada.

Anders, G.C.
1996 The Indian Gaming Regulatory Act and native American development. International Policy Review 6 (1):84-90.

Bergh, C. and E. Kuhlhorn
1994 Social, psychological and physical consequences of pathological gambling in Sweden. Journal of Gambling Studies 10(3): 275-285.

Bland, R.C., S.C. Newman, H. Orn, and G. Stebelsky
1993 Epidemiology of pathological gambling in Edmonton. Canadian Journal of Psychology 38:108-112.

Blaszczysnki, A.P. and N. McConaghy
1994a Antisocial personality disorder and pathological gambling. Journal of Gambling Studies 10(2): 129-145.

Blaszczynski, A.P. and N. McConaghy
1994b Criminal offenses in Gamblers Anonymous and hospital treated pathological gamblers. Journal of Gambling Studies 10(2): 99-127.

Blaszczynski, A.P. and D. Silove
1996 Pathological gambling: Forensic Issues. Australian and New Zealand Journal of Psychiatry 30(3): 358-369.

Boreham, P., M. Dickerson, and B. Harley
1996 Australian Journal of Social Issues 31(4):425-442.

Chadbourne, C., P. Walker, and M. Wolfe
1997 Gambling, Economic Development, and Historic Preservation. Chicago, IL: American Planning Association.

Cornell, S., J. Kalt, M. Krepps, and J. Taylor
1998 American Indian gambling policy and its socioeconomic effects: A report to the National Gambling Impact Study Commission. Cambridge, MA.: The Economics Resource Group, Inc.
Cozzetto, D.A.
1995 The economic and social implications of Indian gambling: The case of Minnesota. American Indian Culture and Research Journal.
Custer, R.L. and L.F. Custer
1978 Characteristics of the recovering compulsive gambler: A survey of 150 members of Gamblers Anonymous. Presented at the Fourth Annual Conference on Gambling, Reno, Nevada. December.
Custer, R.L. and H. Milt
1985 When Luck Runs Out. New York: Facts on File Publications.

Dickerson, M., C. Allcock, A. Blaszczynski, B. Nicholls, J. Williams, and R. Maddern
1995 An Examination of the Socioeconomic Effects of Gambling on Individuals, Families, and the Community Including Research into the Costs of Problem Gambling to New South Wales. Sydney, Australia: Australian Institute for Gambling Research.
Eadington, W.R.
1984 The casino gaming industry: A study of political economy. Annals of the American Academy of Political and Social Science 474:23-35.
Fahrenkopf, F.J., Jr.
1995 Testimony before the Hearing on the Gambling Impact Study Commission, Committee on Governmental Affairs, U.S. Senate, Washington, D.C.: November 2, 1995 .
Federal Reserve Bank of Boston.
1995 Casino Development: How Would Casinos Affect new England's Economy? Proceedings of a Symposium Sponsored by the Federal Bank of Boston, June 1, 1995.
Filby, M.P., and L. Harvey
1988 Recreational betting: everyday activity and strategies. Leisure Studies 7(2):159-172, May.
Fisher, S.
1991 Governmental response to juvenile fruit machine gambling in the U.K.: Where do we go from here? Journal of Gambling Studies 7(3): 217-247.
Florida Office of Planning and Budgeting
1994 Tallahassee, Florida: The Executive Office of the Governor.
Frank, M.L., D. Lester, and A. Wexler
1991 Suicidal behavior among members of Gamblers Anonymous. Journal of Gambling Studies 7:249-254.
Goodman, R.
1994 Legalized gambling as a strategy for economic development. Northampton, MA: The Study.
Gramlich, E.M.
1990 The fundamental principle of benefit-cost analysis. Chapter 3. In A guide to

benefit-cost analysis, second edition. Englewood Cliffs, California: Prentice Hall, Inc.

Grinols, E.L.
1995 Incentives explain gambling's growth. Forum for Applied Research and Public Policy 11(Summer): 119-124.

Grinols, E. L., and J.D. Omorov
1995 Development or Dreamfield Illusions: Assessing Casino Gambling's Costs and Benefits. In Hearing on The Gambling Impact Study Commission, pp. 384-405. Committee on Governmental Affairs, U.S. Senate, Washington, D.C.: November 2, 1995.

Hewings, G.J.D., G.R. Schindler, D. Anderson, and Y. Okuyama
1998 The Impact of Riverboat Casino Gambling on the Illinois Economy 1995.

Illinois Gaming Board (authors J.T. Johnson, M.A. Belletire, and D.S. O'Brien)
1996 The economic and fiscal impacts of riverboat casino gambling in Illinois. Phase one: Direct impact data, 1991-1995. Springfield, IL: Illinois Gaming Board.

Ison, C.
1995a Dead broke. Star Tribune, December 5, 1995. News section.

Ison, C.
1995b Dead broke. Star Tribune, December 3, 1995. News section.

Jacobs, D.F., A.R. Marston, R.D. Singer, K. Widaman et al.
1989 Children of problem gamblers. Special Issue: Gambling and the family. Journal-of-Gambling-Behavior. 1989 Winter Vol 5(4):261-268.

Ladouceur, R., J.M. Boisvert, M. Pepin, M. Loranger, and C. Sylvain
1994 Social costs of pathological gambling. Journal of Gambling Studies 10:399-409.

Lesieur, H.R.
1998 Costs and treatment of pathological gambling. The Annals of the American Academy 556:153-171.

Lesieur, H.R.
1992 Compulsive Gambling. Society 29(4):43-50.

Lesieur, H.R.
1989 Experience of employee assistance programs with pathological gamblers. Journal of Drug Issues 19(4): 425-436.

Lesieur, H.R.
1987 Gambling, pathological gambling and crime. In The handbook of pathological gambling, Thomas Galski, ed. Springfield, Illinois: Charles C. Thomas.

Lesieur, H.R., and C. Anderson
1995 Results of a survey of Gamblers Anonymous members in Illinois. Illinois Council on Problem and Compulsive Gambling.

Lesieur, H.R., and S.B. Blume
1991 Evaluation of patients treated for pathological gambling in a combined alcohol, substance abuse, and pathological gambling treatment unit using the Addiction Severity Index. British Journal of Addiction 86:1017-1028.

Lesieur, H.R. and R. Klein

1985 Prisoners, gambling and crime. Paper presented at the Annual Meeting of the Academy of Criminal Justice Sciences. Las Vegas, Nevada April 2, 1985.

Lesieur, H.R., and J. Rothschild

1989 Children of Gamblers Anonymous members. Journal of Gambling Behavior 5:269-281.

Livingston, J.

1974 Compulsive Gamblers: Observations on Action and Abstinence. New York: Harper Torchbacks.

Lorenz, V.C., R.M. Politzer, and R.A. Yaffee

1990 Final Rerport of the Maryland Task Force on Gambling Addiction.

Lorenz, V.C., and D.E. Shuttlesworth

1983 The impact of pathological gambling on the spouse of the gambler. Journal of Community Psychology 11:67-76.

Lorenz, V.C., and R.A. Yaffee

1986 Pathological gambling: Psychosomatic, emotional and marital difficulties as reported by the gambler. Journal of Gambling Behavior 2 (1):40-49.

Lorenz, V.C., and R.A. Yaffee

1988 Pathological gambling: Psychosomatic, emotional, and marital difficulties as reported by the spouse. The Journal of Gambling Behavior 4:13-26.

Madden, M.K.

1991 Economic and fiscal impacts associated with the first year of gaming: Deadwood, South Dakota. Pierre, SD: South Dakota Commission on Gaming.

McCormick, R.A., A.M. Russo, L.F. Ramirez, and J.I. Taber

1984 Affective disorders among pathological gamblers seeking treatment. American Journal of Psychiatry 141:215-218.

McMillen, J.

1991 The Impact of Casinos in Australian Cities. In Gambling and Public Policy: International Perspectives, William R. Eadington and Judy A. Cornelius, eds. (pp. 87-120). Reno, NV: Institute for the Study of Gambling and Commercial Gaming, University of Nevada.

Meyer, G., and T. Fabian

1992 Delinquency among pathological gamblers: A causal approach. Journal of Gambling Studies 8 (1):61-77.

Meyer et al., 1995 5-7

Meyer-Arendt, K.J.

1995 Casino Gaming in Mississippi: Location, Location, Location. Economic Development Review 13(4):27-33.

Moran, E.

1969 Taking the final risk. Mental Health (London), pp. 21-22. Winter.

Oddo, A.R.

1997 The Economics and Ethics of Casino Gambling. Review of Business 18(3):4-8.

Oster, C.V., B.M. Rubin, and J.S. Strong

1997 Economic Impacts of Transportation Investments: The Case of Federal Express.

Transportation Journal 37(2):34-44.

Politzer, R.M., J.S. Morrow, and S. Leavy

1981 Report on the Societal Cost of Pathological Gambling and the Cost Benefit/Effectiveness of Treatment. Proceedings of the 1981 Conference on Gambling. Reno: University of Nevada.

Ricardo, 1998 5-19

Richardson, H.W.

1972 Input-Output and Regional Economics. New York: John Wiley.

Schwarz, J., and A. Lindner

1992 Inpatient treatment of male pathological gamblers in Germany. Journal of Gambling Studies 8:93-109.

Stokowski, P.A.

1996 Riches and Regrets: Betting on Gambling in Two Colorado Mountain Towns. Niwot, Colorado: University Press of Colorado.

Thompson, W.N., R. Gazel, D. Rickman

1996a Casinos and Crime in Wisconsin: What's the Connection? Thiensville, WI: Wisconsin Policy Research Institute Inc., November 1996.

Thompson, W.N., R. Gazel, and D. Rickman

1996b The social costs of gambling in Wisconsin. Wisconsin Policy Research Institute Report 9(6):1-44.

Thompson, W.N., R. Gazel, and D. Rickman

1995 The Economic Impact of Native American Gaming in Wisconsin. Milwaukee, WI: Wisconsin Policy Research Institute.

U.S. Department of Commerce

1992 Regional Multipliers: A User Handbook for the Regional Input-Output modeling System (RIMS II). Washington, D.C.: Government Printing Office.

Volberg, R.A.

1994 The prevalence and demographics of pathological gamblers: Implications for public health. American Journal of Public Health 84:237-241.