The Costs and Consequences of Gambling In the State of Delaware

State of Delaware, Health and Social Services,
Division of Substance Abuse and Mental Health

Prepared by Health Services Policy Research Group,
School of Urban Affairs and Public Policy,
University of Delaware
Newark Delaware 19716
October, 2002

Preface

This report analyzes the costs and consequences of legalized gambling in Delaware. The legalization of slot machine gambling in 1995 stimulated the growth of a new sector of the Delaware labor force. This sector includes jobs at gambling establishments and jobs in supporting services, such as hotels, restaurants, and bars.

Gambling also brings visitors from out-of-state who spend money at stores, gas stations, motels, and restaurants. Besides these economic benefits, legalized gambling has resulted in substantial costs and consequences, including those associated with excessive debt and bankruptcy, divorce, embezzlement, and child neglect.

This study was conducted by Health Services Policy Research Group of the University of Delaware. Staff included Robert Wilson, Paul Solano, Mary Joan McDuffie, and Barbara Johanson.

Contents

Chapter 1
The Introduction of Legalized Gambling in Delaware

Legalized gambling is often viewed as a way to raise revenues without raising taxes. According to this position, the introduction of slot machines at Delaware's three racetracks would inject life into the declining horse racing industry. Since legalization in 1995, slot machines have commanded increasing attention from the Delaware General Assembly because of the substantial revenue they generate. The economic benefits from gambling are highly visible, but gambling also carries substantial social and economic costs that are less apparent. This report analyzes the costs and consequences of gambling in the State of Delaware.

The Recent History of Legalized Gambling in Delaware

On May 31, 1974 Governor Sherman Tribbitt, signed House Bill 647, which established the Delaware State Lottery. The Lottery was authorized by the Executive Office of the Governor. The General Assembly appropriated four hundred thousand dollars to implement the lottery. The Governor's Lottery Advisory Board (Commission) was established by Executive Order Number 58, on October 16, 1974 by Governor Tribbitt. The primary responsibility of the Lottery Advisory Board was to advise the Lottery Director regarding new games to implement. The Lottery Advisory Board had a brief lifespan and was abolished on October 23, 1979 by Executive Order Number 75 (http://lottery.state.de.us/aboutus/history.htm).

Between April 16th and October 30, 1975 the Delaware Lottery was temporarily halted because of a controversy about the fact that there had been no first prize winners of a

particular game. On July 7, 1976, 60 Del. Law, c.539 mandated that regulation of the Lottery be transferred from the Executive Office of the Governor to the Department of Finance, and that forty-five percent of gross sales be returned to the players. The Lottery has run continuously since 1975 and has raised $2,999,800,000 in total gross revenue, and $969,100,000 in designated funds for State services (http://lottery.state.de.us/aboutus/financial.htm).

In 1994 the Delaware General Assembly enacted legislation legalizing video lottery machines at racetracks with pari-mutual betting. These included Delaware Park, Dover Downs, and Harrington Raceway. The Delaware Constitution prohibits slot machines at other locations in the State (68 Del. Laws, ch.252, 3). However, the General Assembly circumvented the State Constitution, by calling the newly authorized devices "video lottery machines." The state defines video lottery machines as follows:

> Any machine in which coins, credits, or tokens are deposited in order to play any game of chance in which the results, including options available to the player, are randomly and immediately determined by the machine. A machine may use spinning reels or video displays or both, and may or may not dispense coins or tokens directly to winning players. A machine shall be considered a video lottery machine notwithstanding (i) the use of an electronic credit card system making the deposits of bills, coins or tokens unnecessary, or (ii) the fact that the lottery machine has employed dual functional terminal technology (Delaware State Lottery Office, Video Lottery Regulations, 2000, page 7).

Delaware law 29 Del. C.6924 mandates that the sites with video lottery machines cannot have more than one thousand machines, unless approved by the Director of the Lottery. The Director can approve a maximum of one thousand additional machines (Delaware State Lottery Office, Video Lottery Regulations, 2000). Currently, Delaware Park

and Dover Downs have two thousand machines respectively, and Harrington Raceway has one thousand one hundred and fifty-one machines (http://lottery.state.de.us/products/vdodata/ modat2001 html).

Chapter 2
The Prevalence of Gambling in the State of Delaware

The prevalence of problem gambling in Delaware is estimated from two recent surveys, both conducted by the University of Delaware (High Risk Geographic Area Survey, University of Delaware, 1999; Young Adult Survey, University of Delaware, 2000)[1]. Problem gambling is defined by the criteria from the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) published by the American Psychiatric Association, (1994). The combined surveys are referred to as the Delaware Gambling Survey.

The Delaware Gambling Survey is based on a sample of 2,638 respondents (aged 18 years and above). The Survey is weighted to represent the age and gender distribution of the Delaware household population. The prevalence of gambling is estimated by age, gender, and race for each of Delaware's three counties.

Estimating the Prevalence of Gambling

Prevalence is estimated for *problem gambling, at-risk gambling, and social gambling*. These classifications are derived from the diagnostic criteria for gambling disorders, fourth version (DSM-IV) of the Diagnostic and Statistical Manual for Mental Disorders (American Psychiatric Association, 1994). The Manual provides a detailed description of the characteristics and diagnostic of all recognized mental disorders.

Pathological gambling was first included in the Diagnostic and Statistical Manual in 1980 (Potenza, Kosten and Rounsaville, 2001). The most recent update of Version Four was published in 1996. Figure 1 lists the diagnostic criteria for gambling disorders.

Figure 1
DSM-IV[1] Criteria for Determining Pathological Gambling

1. Is preoccupied with gambling.
2. Needs to gamble with increasing amounts of money in order to achieve the desired excitement.
3. Has repeated unsuccessful efforts to control, cut back, or stop gambling.
4. Is restless or irritable when attempting to cut down or stop gambling.
5. Gambles as a way of escaping from problems or of relieving a dysphoric mood.
6. After losing money gambling, often returns another day to get even.
7. Lies to family members, therapist, or others to conceal the extent of involvement with gambling.
8. Has committed illegal acts such as forgery, fraud, theft, or embezzlement to finance gambling.
9. Has jeopardized or lost a significant relationship, job, or educational or career opportunity because of gambling.
10. Relies on others to provide money to relieve a desperate financial situation caused by gambling.

[1]American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition. (DSM-IV). July 1994, pages 615-617.
Health Services Policy Research Group, 2002.

The DSM-IV Criteria characterize pathological gambling as a "persistent and recurrent maladaptive gambling behavior that disrupts personal, family, or vocational pursuits. The diagnosis of pathological gambling is not made if the gambling behavior is characterized as a Manic Episode" (American Psychiatric Association, 1994, page 615).

[1] The Young Adult Study was based on a sample of Delaware residents aged eighteen to thirty-four years. The High Risk Area Study included individuals aged 18 years and over who resided in ZIP-Code areas that were at high risk for alcohol and drug problems.

In 1999, the National Gambling Impact Study Commission released a report on the “Gambling Impact and Behavior Study.” The purpose was to estimate the national prevalence of pathological gambling and the societal impacts from gambling, in particular the social costs. The social costs of gambling, according to this study, included the following costs and consequences: unemployment, welfare, health insurance, treatment, bankruptcy, arrests, corrections, and divorce. The National Gambling Study was based on three surveys, which included a telephone survey of 2,417 adults; an on-site survey of 530 adult patrons at twenty-one gaming facilities; and a telephone survey of 534 youths aged sixteen through seventeen (National Gambling Impact Study Commission, 1999). The Gambling Impact Study Commission Study introduced a new scale, employing the DSM-IV criteria, which was designed for telephone administration. The new screening instrument was called the NODS, an acronym which denotes NORC (NORC is the National Opinion Research Center of the University of Chicago, the organization that developed the new scale), and the study employs a Diagnostic Screen, based on the DSM-IV. Figure 2 lists the NODS questions and indicates their linkage with the DSM-IV criteria.

Figure 2

DSM-IV Criteria Matched with NOD's Questions[1]

Preoccupation	**1.** Have there ever been periods lasting 2 weeks or longer when you spent a lot of time thinking about your gambling experiences or planning out future gambling ventures or bets? **OR** **2.** Have there ever been periods lasting 2 weeks or longer when you spent a lot of time thing about ways of getting money to gamble with?
Tolerance	**3.** Have there ever been periods when you needed to gamble with increasing amounts of money or with larger bets than before in order to get the same feelings of excitement?
Withdrawal	**4.** Have you ever tried to stop, cut down, or control your gambling? **5.** On one or more of the times when you tried to stop, cut down, or control your gambling, were you restless or irritable?
Loss of Control	**6.** Have you ever tried but not succeeded in stopping, cutting down, or controlling your gambling? **7.** If so, has this happened three or more times?
Escape	**8.** Have you ever gambled as a way to escape from personal problems? **OR** **9.** Have you ever gambled to relieve uncomfortable feelings such as guilt, anxiety, helplessness, or depression?
Chasing	**10.** Has there ever been a period when, if you lost money one day, you would return another day to get even?
Lying	**11.** Have you ever lied to family members, friends, or others about how much money you lost on gambling? **12.** If so, has this happened three or more times?
Illegal Acts	**13.** Have you ever written a bad check or taken money that didn't belong to you from family members or anyone else in order to pay for your gambling?
Risked Significant Relationship	**14.** Has your gambling ever caused serious or repeated problems in your relationship with any of your family members or friends? **OR** **15.** (*Ask only if respondent is in school)* Has your gambling caused you any problems in school, such as missing classes, days of school or your grades dropping? **OR** **16.** Has your gambling ever caused you to lose a job, have trouble with your job, or miss out on an important job or career opportunity?
Bailout	**17.** Have you ever needed to ask family members or anyone else to loan you money or otherwise bail you out of a desperate money situation that was largely caused by your gambling?

[1]R. Volberg, H. Harwood, A. Tucker, F. Christiansen, W. Cummings, and S. Sinclair. Gambling Impact and Behavior Study. National Gambling Impact Study Commission.18 March 1999. (page18)
Health Services Policy Research Group, 2002.

A 1999 Gambling Study report estimated the prevalence of problem gambling in Delaware with the South Oaks Gambling Screen (SOGS), an instrument which was developed for clinical screening. The study focused on gambling in the year prior to the

interviews (1997). The present study also focuses on the gambling patterns in the year prior to the survey (1999). The report includes one-year prevalence estimates (for 2002) for pathological gambling, problem gambling, at-risk gambling, and social gambling. The study estimates the lifetime costs and consequences of pathological gambling based on the 2002 prevalence estimates.

The Prevalence of Gambling in Delaware

Survey-based prevalence rates for 1999 are used to estimate the number of pathological, problem, at-risk and social gamblers, by age-group, gender, and for each of the State's three counties. To assure precision, all the prevalence estimates are calculated with 95% prediction intervals.[2] This updated study employs population estimates issued in October, 2002 published by the Delaware Population Consortium (**www.cadsr.udel.edu**). The most recent report estimates the State population characteristics through the year 2030. An estimated 595,091 people aged eighteen and above make up the household population of Delaware in July, 2002.

The Delaware Gambling Survey provides estimates of one-year gambling prevalence for the State's household population aged eighteen years and above. The estimated number of people and percentage of the population that gambled in any form (i.e. cards, bingo, lottery, office football pools, etc.) is shown in Figure 3, which shows the estimated number of Delaware residents (aged 18 years and above) who gambled

[2]A 95 percent prediction interval displays a range within which the estimate falls in the 95 percent of estimates based on a given sample size.

in their lifetimes and over the past year. Estimated prevalence is computed by multiplying the percent in the second column by the projected population of Delaware residents, aged eighteen years and above in 2002 (577,859). Over nine out of every ten respondents (93.1 percent of those surveyed) reported that they had gambled at least once in their lifetimes. Therefore, 93.1 percent was multiplied by 595,091 to produce an estimated 554,030 Delaware residents who gambled at least once in their lifetimes.

Figure 3
Estimated Prevalence of Gambling, State of Delaware July, 2002, Delaware Household Population Aged 18 Years and Above

	Percent Gambled[1]	**Number of People Who Gambled[2,3]**
Gambled in lifetime	93.1 (92.64-93.56)[3]	554,030 (5,551,292-556,767)
Never gambled in lifetime	6.9 (6.44-7.36)	41,061 (38,324-43,799)
Gambled in the past year	72.3 (71.49-73.11)	430,251 (425,431-435,071)
Did not Gamble in the past year	27.7 (26.89-28.51)	164,840 (160,020-169,660)

[1]n=3045 (weighted survey total)
[2]Number of gamblers based upon the 2002 Delaware Population Consortium estimate, which indicated a population of 595,091 people over the age of 18 years.
[3]The numbers in parentheses indicate a 95 percent prediction interval, the probable range within which the point estimate falls.

The prevalence of gambling in the Delaware is very close to the prevalence reported in national surveys. The "Gambling Impact and Behavior Study," which was prepared by the National Gambling Impact Study Commission, reported similar outcomes of lifetime gambling and gambling during the past year. The "Gambling Impact and Behavior Study" compared their findings to the 1976 report released by the Commission on the Review of the National Policy toward Gambling. In 1975, sixty-eight

percent of the adult population of the United States reported gambling at least once in their lifetimes and sixty-one percent reported gambling at least once in the past year. By 1998, approximately eighty-six percent of the adult population in the United States reported gambling at least once in their lifetimes and sixty-three percent indicated that they had gambled one or more times in the past year. In 1998, fifty percent of the adult population reported playing the lottery at-least one time in the past year, and one out of four adults reported gambling at a local casino in the past year.

The National Gambling Impact and Behavior Study reported that between 1975 and 1997, expenditures for gambling have increased from .30 percent of personal income to .74 percent of personal income. The increase in the prevalence of gambling from 1975 to 1997 and the increase in personal expenditure on gambling accounted for a sixteen hundred percent increase in revenues from legalized gambling. Not only do more Americans gamble, they gambling more frequently and wager a higher percentage of their income (National Gambling Impact Study Commission, 1999).

The most recent Delaware Survey (1999) indicates that those who gamble most frequently (once a week or more) spend a higher percentage of household income on gambling than those who gamble less frequently. Over 60,000 Delaware residents gamble once a week or more often (Figure 4).

Figure 4
Estimated Frequency of Gambling in the Past Year, Delaware Household Population Aged 18 Years and Above[1]

	Percent	Number
Once per week	10.5 (9.95-11.05)	62, 485 (59,212-65,758)
2-3 times per month	5.0 (4.61-5.39)	29,755 (27,434-32,075)
Once per month	5.6 (5.18-6.02)	33,325 (30,826-35,824)
Less than once per month	51.2 (50.29-52.11)	304,687 (299,271-310,102)
Did not gamble during last year	27.7 (26.89-28.51)	164,840 (160,020-169,660)

[1]Number of gamblers based upon the 2002 Delaware Population Consortium, which indicated a population of 595,091 residents over the age of 18 years in July, 2002...
Health Services Policy Research Group, 2002.

Nationwide, the increase in the lifetime prevalence of gambling can be attributed to a significant increase in the legalization of state lotteries and casino venues, from the 1970's to the mid-1990's (Potenza, Kosten, and Rounsaville, 2001). During the same period there has been a substantial decrease in the negative stigma associated with gambling (Potenza, Kosten, and Rounsaville, 2001). In 1976, thirteen states had legal lotteries. Only Nevada and New York had legalized off-track gambling, and Nevada was the sole state with legalized casinos. By 1998, every state in the United States, except three, Utah, Tennessee, and Hawaii, had some kind of legalized gambling. Of the states with legalized gambling, thirty-seven had lotteries, twenty-one had casinos and "slightly more [than thirty-seven states] had off-track betting" (National Gambling Impact Study Commission, 1999, page 3).

Pathological, Problem, At-Risk, and Social Gambling

Pathological gambling is defined by specific patterns of behavior described by the DSM-IV diagnostic criteria (Figure 1). The number of criteria represented in an

individual's behavior determines the classification of gambling: e.g., pathological gambling, problem gambling, at-risk gambling, or social gambling (Figure 5).

Figure 5
Criteria for Gambling Problem Severity[1]

Non-gambler	Never gambled in the last year
Low-risk gambler	Reported no DSM-IV criteria
At-risk gambler	Reported one or two DSM-IV criteria
Problem gambler	Reported three or four DSM-IV criteria
Pathological gambler	Reported five or more DSM-IV criteria

[1]R. Volberg, H. Harwood, A. Tucker, F. Christiansen, W. Cummings, & S. Sinclair. Gambling Impact and Behavior Study. National Gambling Impact Study Commission.18 March 1999. (page 21).

To be classified as a "pathological" gambler, an individual must exhibit a minimum of five of the characteristics listed in Figure 1 (American Psychiatric Association, 1994). The DSM-IV classifications are central to diagnosis. If a patient reports any of the DSM criteria, he/she should be assessed for pathological gambling (American Psychiatric Association, 1994). Pathological gambling is characterized by distortions in thinking, such as extreme denial and overconfidence. Pathological gamblers tend to be preoccupied with the idea that money is both the root of their personal problems and the solution to all of their difficulties. Pathological gamblers are highly competitive, energetic, restless, and easily bored. They are also characteristically overtly concerned about approval of others. They also can be extremely generous. In the work setting, a pathological gambler is frequently a workaholic or waits until the very last minute to complete a project. Pathological gamblers are more likely than the general population to have health problems associated with stress, such as hypertension. They also have "increased rates of Mood Disorders, Attention-Deficit/Hyperactivity Disorder, Substance Abuse and Dependence,

and Antisocial, Narcissistic, and Borderline Personality Disorders" (American Psychiatric Association, 1994, page 616). One study indicates that twenty percent of pathological gamblers reported that they had attempted suicide. Similar to those who are dependent on alcohol, pathological gamblers frequently reveal a familial history of gambling problems. If a parent had a gambling problem, one is at a higher risk of developing a problem (American Psychiatric Association, 1994).

Several studies have found evidence to support the American Psychiatric Association's conceptualization of pathological gambling. According to an article in the Journal of the American Medical Association, individuals who are diagnosed as pathological or problem gamblers are subject to mood disorders, psychotic disorders, anxiety, attention-deficit disorders, personality, and substance use disorders (Potenza, Kosten, and Rounsaville, 2001). One study found that these gamblers "were 3.3 times more likely to report ever having experienced major depression, 3.5 times more likely to report a history of schizophrenia, 2.3 times more likely to have experienced phobias, 6.1 times more likely to report an antisocial personality, 3.3 times more likely to report current or past alcohol abuse, and 2.1 times more likely to report current or past nicotine dependence" (Potenza, Kosten, and Rounsaville, 2001, page 141). Adolescents and adults in mental health and substance abuse treatment have a four to ten times higher prevalence of pathological and problem gambling than the general population (Potenza, Kosten, and Rounsaville, 2001).

The National Gambling Impact Study Commission report, “Gambling Impact and Behavior Study,” found evidence to support the American Psychiatric Association’s DSM IV criteria for pathological gambling. Pathological and problem gamblers are more likely than low-risk gamblers to have psychological problems, including manic depression, and to have received mental health care in the past year. Thirteen percent of pathological and problem gamblers, as compared to six to seven percent of the general population, sought professional help for emotional or mental health problems. At-risk, problem and pathological gamblers are also more likely than low risk and non-gamblers to have been alcohol or drug dependent, or to have used illicit dugs in the past twelve months. Thirty percent of pathological gamblers, as compared to fifteen percent of non-gamblers, described their general health over the past year as fair or poor. Additionally, forty-three to forty-five percent of pathological and problem gamblers, twenty-eight percent of at-risk gamblers, sixteen percent of low risk gamblers and eleven percent of non-gamblers, acknowledged being somewhat or very troubled by their emotions, nerves, or mental health (National Gambling Impact Study Commission, 1999). The importance of these findings is significant to the present costs and consequences study in that it identifies a broad range of mental health problems that frequently co-occur with gambling problems, such clinical depression and suicidal behavior. In this sense, gambling disorders may be a sign of other psychological disorders. An individual manifesting just a few of the criteria for pathological gambling may have co-occurring psychiatric disorders that require a treatment beyond the counseling typically provided for problem gambling.

The Prevalence of Pathological Gambling Problem Gambling, At-Risk Gambling, and Social Gambling in the State of Delaware

The primary objective of this study is to examine the social costs associated with pathological and problem gambling. Estimating the prevalence of problem gambling is the first step in estimating the costs and consequences of gambling. Social costs are conventionally assessed by estimating the future costs of the problems associated with current gambling, rather than costs associated with pathological or problem gambling in prior periods. It is assumed that an individual is not a pathological or problem gambler unless he or she wagers at least one time during a year. One-year prevalence estimates are based on respondents who reported gambling one or more times during the year prior to the interview. Costs and consequences are calculated for Delaware residents who were pathological or problem gamblers in the year prior to the interview. The estimated one-year prevalence of pathological, problem, at-risk, and social gambling is shown in Figure 6.

Figure 6
Estimated Prevalence of Gambling during the Past Year, by Severity, State of Delaware 2002, Household Population Aged 18 Years and Above[1]

Classification	*Percent*	*Number of gamblers[2]*
Pathological Gambler	.3 (.20-.40)	1,785 (1,190-2,380)
Problem Gambler	.4 (.29-.51)	2,380 (1,727-3,035)
At-Risk Gambler	5.8 (5.38-6.22)	34,515 (32,016-37,015)
Low-Risk Gambler	14.6 (13.96-15.24)	86,883 (83,074-90,692)
Never Gambled or Did Not Gamble at Least Once Per-Month in the Past Year	78.9 (78.16-79.64)	469,527 (465,123-473,930)

[1]Based upon the 2002 Delaware Population Consortium, 595,091 people over the age of 18 years.
[2]Based on respondents reporting that they gambled one time per month during the last year.
Health Services Policy Research Group, 2002.

The results of the most recent Delaware survey (1999) indicate that a smaller percentage of the population is pathological and problem gamblers than the percentage for United States as a whole (0.7% of Delaware residents and 2.1% in the United States residents, General Accounting Office, 2000). There are several possible reasons for this difference. One possible explanation is that the gaming industry in Delaware is very small, compared to those in Las Vegas and Atlantic City. The majority of the businesses in these major gambling hubs is directly or indirectly supported by gambling, which results in more aggressive marketing of gambling. In Delaware slot machines are restricted to three relatively small venues, Delaware Park, Dover Downs, and Harrington Raceway. The major gambling centers, in contrast, have a proliferation of slot machines in a variety of stores and other public places beyond casinos. Another possible reason that the Delaware population has a relatively low percentage of pathological and problem gamblers is that many who come to Delaware to gamble reside in other states. Delaware exports a substantial proportion of the costs and consequences of problem gambling to the surrounding states. With the exception of New Jersey, the surrounding states do not have legalized slot machines. As a result, many out-of-state residents gamble in Delaware but manifest the costs and consequences of gambling mainly in their home states. Although out-of-state residents gamble in Delaware, they are not identified in surveys of Delaware residents.

According to the General Accounting Office report on the national impacts of gambling, approximately fourteen percent of the adult population in the U.S. has never gambled in their lives. This equates to twenty-nine million people. Of those who have

gambled, 75.6 percent (148 million adults) are low-risk gamblers, 7.9 percent (15 million adults) are at-risk gamblers, 1.3 percent (3 million adults) are problem gamblers, and 0.8 percent or 2.5 million adults are pathological gamblers (General Accounting Office, 2000). However, of the one percent of adults that considers themselves professional gamblers, twenty percent are pathological gamblers (National Gambling Impact Study Commission, 1999).

An article in the Journal of the American Medical Association (JAMA) estimates a slightly higher national prevalence of pathological and problem gambling. According to JAMA a "meta-analysis" of gambling studies conducted in the U.S. indicated that the prevalence of pathological gambling in the adult population is 1.14 percent in the past year category and 1.60 percent in the lifetime category (Potenza, Kosten, and Rounsaville, 2001, page 141). The JAMA study found that the less severe problem gambling is prevalent in 2.80 percent of the adult population in the past year and 3.85 percent in one's lifetime (Potenza, Kosten, and Rounsaville, 2001).

There does appear to a correlation between problem gambling with certain types of gambling venues (i.e. slot machines, poker, etc.). Both the JAMA article and the "Gambling Impact and Behavior Study" report that the prevalence rate for pathological and problem gambling among casinos players is 6.4 percent and 4.6 percent respectively and 5.2 percent and 3.6 percent respectively among lottery players, and 25 percent and 14 percent among race track patrons (Potenza, Kosten, and Rounsaville, 2001, and National Gambling Impact Study Commission, 1999).

An English Study, "Measuring the Prevalence of Sector-Specific Problem Gambling: A Study of Casino Patrons", reported that certain sectors of the gambling industry had higher prevalence rates for pathological and problem gambling (Fisher, 2002). The study was conducted in British casinos with the purpose of estimating the prevalence rates of pathological and problem gamblers among casino patrons and to determine the demographics of the pathological and problem gamblers. England has strict gambling laws and only three percent of the British population gambles annually (Fisher, 2002). The British study established that 5.1 percent of casino gamblers were pathological gamblers and 2.2 percent were problem gamblers. Seven percent of regular casino patrons make up sixty-three percent of all the visits to British casinos. Of the regular casino patrons, 14.8 percent were pathological gamblers. This finding supported a hypothesis of the study, which was that "casinos in the U.K. are patronized mainly by regular players, among whom the prevalence of problem gambling is relatively high" (Fisher, 2002, page 25). The same study indicated that sixteen percent of the respondents reported having a problem with gambling during the past year. Four percent described themselves as compulsive gamblers and two percent had sought treatment during the last year (Fisher, 2002).

Prevalence of Problem Gambling in Delaware by Age, Gender, and Race

Another objective of the Delaware Gambling Survey was to measure the differences in problem gambling across the major demographic categories: by gender, age, and race. This analysis explores differences in the prevalence of the broadest

category of problem gamblers, those who manifest one or more of the DSM-IV criteria for pathological gambling. This population includes at-risk gamblers, pathological gamblers, and problem gamblers (Figure 5).

The analysis examines males and females by age group that has at-least one DSM-IV criteria (Figure 7). Approximately 12 percent of males aged eighteen through twenty-four have one or more gambling problems. The statewide percentage of gamblers indicates that of all the male gamblers with one or more gambling problems, 15 percent of them are aged eighteen through twenty-four. In contrast, only four percent of females with gambling problems fall within this age-group. The highest percentage of women gamblers registered in the 45-64 age group.

Figure 7
Estimated Gamblers, Aged 18 Years and Above, with One or More DSM-IV Criteria, by Age and Gender[1]

Gender	**Age**	***Percentage of Gamblers by Age-Group***	***Percentage of Gamblers***	***Number of Gamblers[2]***
Male	18-24	11.2 (10.6-11.7)	**15.2**	3,719 (3,533-3,905)
	25-44	7.3 (6.9-7.6)	**34.2**	8,349 (7,931-8,766)
	45-64	9.5 (9.0-9.9)	**35.1**	8,592 (8,163-9,022)
	65+	8.4 (8.0-8.8)	**15.4**	3,771 (3,582-3,959)
Total			**100.0%**	**24,431**
Female	18-24	1.7 (1.6-1.8)	**4.2**	592 (562-622)
	25-44	3.7 (3.5-3.9)	**30.9**	4,400 (4,180-4,620)
	45-64	7.4 (7.0-7.7)	**50.6**	7,208 (6,847-7,568)
	65+	3.3 (3.2-3.5)	**14.4**	2,047 (1,945-2,150)
Total			**100.0%**	**14,247**
				38,678

[1]According to the Delaware Population Consortium the estimated number of people by age-group and gender for the State in July 2002 was:

Males	18-24	33,241	**Females**	18-24	34,407
	25-44	114,867		25-44	117,972
	45-64	90,761		45-64	97,881
	65+	44,802		65+	61,160

[2]Gamblers with one or more DSM-IV criteria: Males=24,431; Females=14,247; Total=38,678
Health Services Policy Research Group, 2002.

Males are more likely than females to be problem gamblers (Figure 7). A male between the ages of 18 and 24 is more likely than his older counterparts to manifest one or more DSM-IV criteria. In contrast, a female between the ages of 45 and 64 is most likely to manifest one or more of the DSM-IV criteria (Figure 7).

Several national surveys examined the differences in the relationship between gender and pathological and problem gambling and the correlation between the specific types of gambling activities and gender. The Delaware Gambling Study found that males were slightly more likely than females to be pathological or problem gamblers, although the differences were not statistically significant). The national study also examined the differences in the type of gambling by gender. Neither males nor females were more likely to have gambled at a casino, but males were more likely to have wagered in the lottery and were more likely to have played bingo than females (National Gambling Impact Study Commission, 1999).

A study completed in Sydney, Australia also compared the gambling behaviors of males and females. The sample consisted of 1,257 females, who were interviewed by telephone, and three thousand male and female members from the six largest clubs in Sydney, Australia. The purpose of the study was to examine how female participation in various gambling activities differs from male participation, how female patterns of gaming machine play differ from male patterns, and how the prevalence of problem gambling amongst females differs than males (Hing and Breen, 2001).

Studies have consistently found that men prefer sports betting, stock speculation and pari-mutual betting, whereas, women prefer slot machine gambling. The 1996 Australian Institute of Gambling Study found that males primarily preferred instant lottery, racing, gaming machines, Keno, and pool. There are conflicting surveys on whether it is men or women that prefer bingo and casino gambling (Hing and Breen, 2001).

The Sydney, Australia Study (Hing and Breen, 2001, page 52) portrays gambling as a way for a woman to escape the regular activities in her life. Men are more likely than women to be problem gamblers, but women who are problem gamblers develop a problem because of a need to escape from personal pressures, boredom, and depression. Females are more likely to display patterns of gambling that maximizes playing time (Hing and Breen, 2001, page 54). Females were likely to prefer lottery, soccer pools, bingo, and club machine betting. Men tended to prefer Keno, TAB betting, on-course betting, and casino table-games. Even though females preferred certain types of gambling, they were not more frequent gamblers of a specific gambling outlet. The results of the Sydney study supported the hypothesis that females gamble because it consumes time. The study found that females wager smaller amounts of money than men per play but over time end up gambling the same amount of money.

Several studies have examined the characteristics of gambling across age groups. The Delaware Gambling Study indicates that people aged sixty-five and older

were less likely than any other age groups to be at-risk, problem, or pathological gamblers. These findings support those of the National Gambling Impact Study Commission (1999).

Another gambling study on "Late Life Gambling: The Attitudes and Behavior of Older Adults", investigated the prevalence of problem gambling among adults aged sixty-five years and above. The study examined older adults' levels of depression, life satisfaction, and motivation to gamble. The study observed two groups of older adults, one group was from various communities, and the second group was casino patrons. In both of the groups it was found that the most prevalent type of gambling in older adults was bingo and casino gambling (McNeilly and Burke, 2000). The casino patron group was more likely than the community group to smoke, drive a car, eat fewer than two meals a day, and do volunteer work on an occasional basis (McNeilly and Burke, 2000, page 402). The casino patron group gambled more frequently and reported a higher South Oaks Gambling Screen Score (SOGS) (McNeilly and Burke, 2000). The SOGS is another pathological gambling screening measure frequently utilized in surveys that are done in person, rather than by telephone. Thirty-eight and a half percent of the casino patron group had a SOGS-R score of 1-2, whereas, 11.6 percent of the community member group scored the same. Five and a half percent of the casino patron group and 1.3 percent of the community member group had a SOGS-R score of 3-4, and 11 percent of the casino patron group and 2.7 percent of the community member group had a SOGS-R score of five or more (McNeilly and Burke, 2000). Casino gamblers also spent more money on all types of gambling, "gambled more than intended, felt guilty

about gambling, borrowed money from a spouse to gamble, and borrowed money from credit cards to gamble" (McNeilly and Burke, 2000, page 407). Casino gamblers were also more likely to feel that lottery and casino gambling is harmless, and that it's a form of entertainment, a relief of boredom, an opportunity to take advantage of inexpensive meals, and an outlet to meet people (McNeilly and Burke, 2000).

The estimated prevalence of at-risk, problem, and pathological gamblers by race and ethnicity in Delaware is shown in Figure 8. There are only two categories of race, white and non-white, in this calculation, because the other minorities with gambling problems in Delaware are so small that the survey would detect no significant difference between different minority races and ethnicities in reference to at-risk, problem, and pathological gambling.

Figure 8
Estimated Delaware Household Population, Aged 18 Years and Above, with One or More DSM-IV Criteria, by Race/Ethnicity[1]

Race[2]	Percentage of Gamblers	Statewide Percentage of Gamblers[3]	Number of Gamblers
White	6.3 (5.9-6.6)	79.6	30,792 (29,253-32,332)
Non-White	7.7 (7.3-8.1)	20.4	7,886 (7,491-8,280)
Total		**100%**	**38,678**

[1] Number of gamblers based upon the 2002 Delaware Population Consortium, which indicates a population of 595,091 people over the age of 18 years.
[2]Based on the Delaware Population Consortium (July, 2002 estimates) the number of residents in the household population (over the age of 18) in July, 2002 was:
White: 492,583
Non-White: 102,580
[3]Based upon the estimated 38,678 Delaware residents, aged 18 years and above, estimated to have gambled one or more times per month during the past year (July 1 2001-June 30, 2003).
Health Services Policy Research Group, 2002.

The difference between the percentage of whites and non-whites that gambled in the past year was not statistically significant (Figure 8). Several of the national studies confirm the finding of minimal differences in the prevalence of problem gambling across race and ethnic groups. Many studies examined socio-economic differences in at-risk, problem, and pathological gambling. However, the National Gambling Study found higher percentages of problem gamblers among African Americans than among whites. This study also reported additional socio-economic characteristics that at-risk, problem, and pathological gamblers are more likely to have never been married or have been divorced than be married (National Gambling Impact Study Commission, 1999). The Journal of the American Medical Association article, cited previously, reported that those who are significantly at-risk of developing into problem or pathological gamblers are: males, African-Americans, individuals who have a family history of gambling problems, and people who are in a lower socio-economic status (Potenza, Kosten, and Rounsaville, 2001). A study that measured the prevalence of sector specific problem gambling found that the average age of problem gamblers is less than thirty years old, that they have a low income, are male, are unemployed, and are non-white (Fisher, 2002). Regular casino patrons were significantly more likely to be non-white, more than forty years old, retired from work, and either divorced or widowed (Fisher, 2002).

An Australian study examined the particular socio-economic effects that could have a causal effect on a particular type of gambling (Layton and Worthington, 1999). The different types that were compared were the most popular types of gambling outlets in Australia that included: lottery tickets, lotto and instant lotto, casinos, and poker

machines. The researchers of this study chose to focus on socio-economic factors related to gambling because past studies have shown that a disproportionate number of people with low incomes are gamblers (Layton and Worthington, 1999).

The same study found that people living in a household with older residents and who receive veterans' benefits have the greatest probability of living in a household where people do all forms of gambling, except casino type games (blackjack, etc.). The study also found that households headed by people aged forty-five to sixty-four are most likely to include the lottery players and at TAB/on-course bettors. Finally, households headed by a blue collar worker are more likely than one headed by a person classified as a manager or professional to be gambling at all types of outlets and particularly poker machines. The study concluded that "all other things being equal, ethnicity, income sources, and income levels all influence the probability of household gambling" (Layton and Worthington, 1999, page 439).

Estimated Problem Gambling Prevalence by County

The combination of at-risk gambling, problem gambling, and pathological gambling is termed **"problem gambling."**[3] The estimated problem gambling population, consists of an estimated 39,665 Delaware residents, aged 18 years and above, comprises a target group for treatment and prevention planning. The estimated prevalence of problem gambling, statewide, and for each of the three counties, is shown in Figure 9. Sussex County registers a significantly higher *rate* of problem gambling

[3] See Figure 5, page 15

than the other counties. However, the largest *number* of problem gamblers (approximately 20,500 residents) resides in New Castle County.

Figure 9
Estimated Prevalence of Problem Gambling in the State of Delaware, by County. Percentage of Gamblers with One or More DSM-IV Criteria, During the Past Year, July, 2002, Population Aged 18 Years of Age and Above[1,2]

County	*Percentage of Gamblers*	*Statewide Percentage[3]*	*Number of Gamblers*
New Castle	5.5 (5.3-5.8)	**53.9**	20,848 (19,805-21,890)
Kent	6.8 (6.6-7.1)	**16.3**	6,318 (6,002-6,634)
Sussex	9.2 (8.7-9.7)	**29.8**	11,512 (10,936-12,088)
Total		**100.0%**	**38,678**

Estimations are made independently for each county and may differ from the statewide estimations.
[1]Number of gamblers is based in part on the 2002 Delaware Population Consortium projections, which indicate a statewide population of 595,091 people over the age of 18 years.
[2]According to the Delaware Population Consortium (October, 2002) the estimated population aged eighteen years and above in July, 2002 was:
New Castle: 377,040, Kent: 92,856, Sussex: 125,194.
Health Services Policy Research Group, 2002.

The category, "Percentage of Gamblers," represents the estimated total of at-risk, problem, and pathological gamblers in each county (Figure 9). An estimated 5.6 percent of New Castle County residents were estimated to be either at-risk gamblers, problem gamblers, or pathological gamblers. The statewide percentage is defined as the percentage of the aggregate of all the at-risk, problem, and pathological gamblers who are residents of each county. Of all the at-risk, problem, and pathological gamblers in Delaware, 53.9 percent live in New Castle County, 16.3 percent reside in Kent County, and 29.8 percent live in Sussex County.

The General Accounting Office (GAO) study of the "Impact of Gambling," found that there is an inverse relationship between the distance that people live from a casino and the prevalence of problem and pathological gambling (GAO, 2000). Having a

casino within a fifty-mile radius of one's household is associated with double the probability of problem and pathological gambling, as compared to residing within 50 to 250 miles from a casino (General Accounting Office, 2000). The nearer a venue to one's residence, the higher is the probability of being a problem gambler. Virtually all of Delaware residents live within a fifty-mile radius of a race track with slot machines. (No significant differences in the prevalence of problem gambling were registered according to the geographic proximity of residence to the three slot machine venue locations).

A Comparison of Gambling Prevalence in Delaware: 1998 vs. 2002

The estimated prevalence of problem gambling in Delaware in 1998 and 2002 is compared in Figure 10. Estimates of the number of pathological, problem, and at-risk gamblers for 1998 and 2002 were generated by multiplying the percentage of pathological, problem, and at-risk gamblers from the Delaware Gambling Study by the 1998 and 2002 population estimates.

Figure 10

Estimated Prevalence Gambling During the Past Year, by Problem Severity, State of Delaware, 1998 and 2002, Delaware Household Population Aged 18 Years of Age and Above

Classification	*Percent 1998*	*Number of Gamblers 1998*[1]	*Percent 2002*	*Number of Gamblers 2002*[2]
Pathological Gambler	**1.3**	1,106 (663-1,547)	**1.4**	1,785 (1,1190-2,380)
Problem Gambler	**3.4**	2,765 (2,100-3,426)	**1.9**	2,380 (1,726-3035)
At-Risk Gambler	**19.5**	16,039 (14,476-17,570)[3]	**27.5**	34,515 (32,016-37,015)[3]
Low-Risk Gambler	**75.8**	62,433 (59,450-65,417)[3]	**69.2**	86,883 (83,074-90,692)[3]
Total	**100.0%**	82,343 (76,689-87,960)	**100.0%**	125,563 (117,917-135,122)

[1]Based on the 1998 Delaware Population Consortium projection, indicating a population of 552,505 residents over the age of 18 years.
[2]Based on the 2000 Report Delaware Population Consortium projection, indicating a population of 591,095 residents over the age of 18 years.
[3]Difference between 1998 and 2000 proportions in these gambling classifications is significant (t-test) at .05 level.
Health Services Policy Research Group, 2002.

There is no significant difference between 1998 and 2002 in the estimated percentage of problem gamblers and pathological gamblers residing in Delaware. However, there was a significant increase in the proportion of at-risk gamblers and a corresponding decline in the proportion of low-risk gamblers over this period. The increase in the number of at-risk gamblers over the four year period signifies a probable increase in the number of problem gamblers and pathological gamblers in the future. This trend, in turn, may lead to an escalation in costs and consequences associated with problem and pathological gambling.

Chapter 3
Social Costs and Economic Benefits Associated to Problem and Pathological Gambling[4]

Employment - Related Costs

Two types of costs are associated with problem and pathological gambling: *intangible costs*, which derive from broken relationships, and *tangible costs*, which are include productivity losses, creditor losses, and social service costs (National Gambling Impact Study Commission, 1999). In terms of productivity losses, when someone misses work or is fired from a job it costs an employer money because that person's work still needs to be completed and a new employee must be hired and trained. An unemployed person may receive unemployment benefits and other social payments, such as public assistance and Medicaid (National Gambling Impact Study Commission, 1999).

According to the National Gambling Impact and Behavior Study approximately seven out of ten problem and pathological gamblers missed work at some point in their lives to gamble. Of these individuals, three out of ten indicated that they lost a job because of their gambling problem. Of problem and pathological gamblers who had worked in the past year, 10.8% and 13.8% respectively had lost or been fired from a job. Costs to the employer are also incurred in search and training costs of approximately ten percent of the salary of each employee replaced (National Gambling Impact Study Commission, 1999).

[4]A description of the methodology employed to estimate the revenues from gambling and the costs of gambling in the State of Delaware is included in Appendix 1.

The costs associated with unemployment due to pathological gambling are conceptualized as follows: If the unemployment rate among pathological gamblers is 13.8% and national unemployment is 5.8% (expected rate), then the "excess" rate of unemployment due to pathological gambling is 8%. If the individual's salary was $40,000, then firing and replacing that employee would cost 10% of $40,000 * 8% = $320, thus the cost of unemployment is $320 for each employee who must be replaced (National Gambling Impact Study Commission, 1999).

The General Accounting Office report conducted in Atlantic City confirmed the employment effect that the gambling industry had on the community. The study found that even though the advent of legalized gambling industry was followed by increases in employment, there was still considerable unemployment in Atlantic City. The growth of the gambling labor force was accompanied by suburban flight of the middle class, which left a younger and less affluent population, whose work habits and substance abuse problems exacerbated the impact of unemployment. Moreover, a considerable amount of work in the gaming industry in Atlantic City is seasonal. When the summer tourist season ends, unemployment rises (General Accounting Office, 2000). Unemployment has also increased because small businesses and restaurants in Atlantic City have gone out of business. In 1977, there were two-hundred and forty-two eating and drinking establishments. In 1981, there were one hundred and sixty and by 1996 there were only one-hundred and forty-two eating and drinking establishments that were not affiliated with a casino (General Accounting Office, 2000).

Bankruptcy Costs

The present study examined the non-business bankruptcies in Delaware to determine whether pathological or problem gambling is associated with bankruptcy trends. Bankruptcy records do not provide a precise indication of the reasons that individuals declare bankruptcy. However, the trend indicates that after video lottery machines were legalized in Delaware in 1995, the non-business bankruptcy rates for Delaware increased (Figure 11). The increase in bankruptcies can also be attributed to a change in federal bankruptcy laws that made it easier to file for bankruptcy.

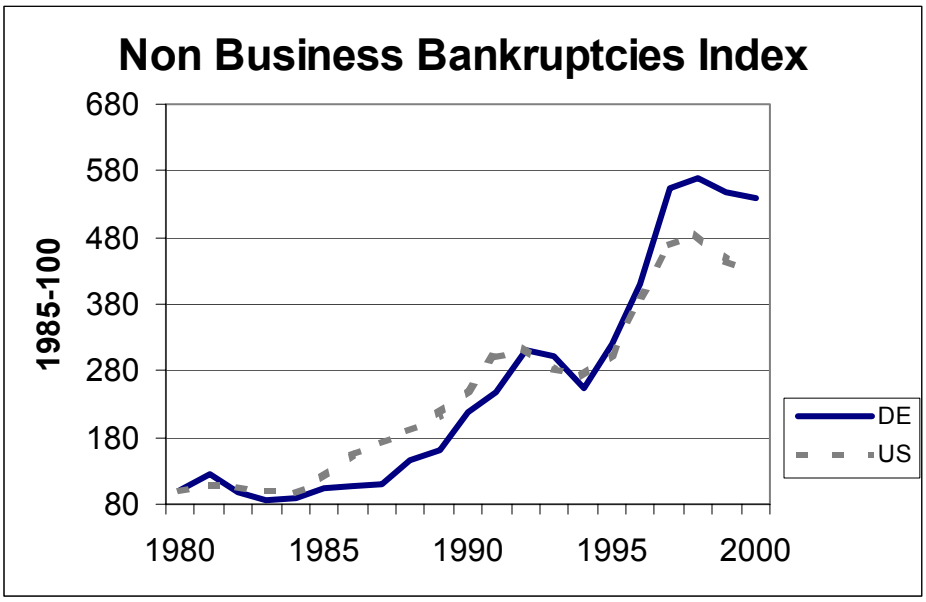
Figure 11
Non-Business Bankruptcies-Index

	DE	DE % change	Index, 1980=100	US	US % change	Index, 1980=100
1980	440	-	100	287,570	-	100
1981	547	24.3%	124.3	315,818	9.8%	109.8
1982	435	-20.5%	98.9	310,951	-1.5%	108.1
1983	376	-13.6%	85.5	286,444	-7.9%	99.6
1984	390	3.7%	88.6	284,517	-0.7%	98.9
1985	456	16.9%	103.6	341,233	19.9%	118.7
1986	475	4.2%	108.0	449,203	31.6%	156.2
1987	488	2.7%	110.9	495,553	10.3%	172.3
1988	640	31.1%	145.5	549,612	10.9%	191.1
1989	711	11.1%	161.6	616,226	12.1%	214.3
1990	954	34.2%	216.8	718,107	16.5%	249.7
1991	1,092	14.5%	248.2	872,438	21.5%	303.4
1992	1,363	24.8%	309.8	900,874	3.3%	313.3
1993	1,329	-2.5%	302.0	812,898	-9.8%	282.7
1994	1,115	-16.1%	253.4	780,455	-4.0%	271.4
1995	1,402	25.7%	318.6	874,642	12.1%	304.1
1996	1,805	28.7%	410.2	1,125,006	28.6%	391.2
1997	2,432	34.7%	552.7	1,350,118	20.0%	469.5
1998	2,499	2.8%	568.0	1,398,182	3.6%	486.2
1999	2,411	-3.5%	548.0	1,281,581	-8.3%	445.7
2000	2,375	-1.5%	539.8	1,217,972	-5.0%	423.5

Health Services Policy Research Group, 2000

Figure 11 displays an index, which compares bankruptcies in each year to the base year (1980). The bankruptcy index is calculated by dividing the number of bankruptcies in a year by the base year, and than multiplying by 100. The percentage change (in columns 3 and 6) illustrates the percentage difference from the previous year.

Chart 1



Health Service Policy Research Group, University of Delaware, 2002.

Even though a change in bankruptcy laws was followed by a national increase in people filing for non-business bankruptcies (Chart 1), the State of Delaware experienced a greater increase in bankruptcies than the national average. One possible explanation is that the increase in Delaware was associated with the legalization of video lottery machines.

Approximately 18 percent of males and 8 percent of females, who had participated in treatment for problem gambling had declared bankruptcy (National Gambling Impact Study Commission, 1999). An average of $39,000 in losses to creditors per personal bankruptcy was reported, because when an individual declares bankruptcy, part of the debt is never paid. Pathological gamblers are at a higher risk for

bankruptcy because they owe $1.20 for every $1 of income, as compared to non-gamblers who are in debt $0.60 for every $1 of income (National Gambling Impact Study Commission, 1999).

Costs of Gambling Associated with Crime

Criminal justice costs that are directly related to gambling involve property crimes such as theft and larceny (National Gambling Impact Study Commission, 1999). Forty-six percent and fifty-six percent of Gambling Anonymous members in Wisconsin and Illinois reported stealing in order to gamble (National Gambling Impact Study Commission, 1999). An Atlantic City Study found no conclusive evidence of an overall increase in crime rates due to casinos (General Accounting Office, 2000). However, non-violent crimes, such as embezzlement and prostitution increased immediately after casinos began operating (General Accounting Office, 2000). Approximately thirty-three percent of problem and pathological gamblers have been arrested, compared to four percent of low-risk gamblers, and .03 percent of non-gamblers. This accounts for an "excess" of lifetime policing costs of $1,250 for each pathological gambler who is arrested (in contrast to policing costs for non-pathological gamblers). The additional lifetime corrections (jail, prison, and probation) costs are $1,700 per pathological gambler and $670 per problem gambler (National Gambling Impact Study Commission, 1999).

Many criminal justice costs are associated with other kinds of behavior that co-occurs with gambling. Pathological gamblers are more likely to be charged with child

abuse, domestic violence, and alcohol and drug-related offenses. Gamblers also account for disproportionately high criminal justice costs associated with suicide attempts (General Accounting Office, 2000). Most of the criminal justice costs incurred by gamblers are not attributable to the enforcement of gambling laws, but instead to other law violations that are an indirect result of gambling. One General Accounting Office study compared the domestic violence reports in Atlantic County with those reported in the rest of New Jersey. The study found that in 1997 there were 225 documented cases of domestic violence per 10,000 people, compared to the rest of New Jersey, which reported 102 incidences of domestic violence per 10,000 people (General Accounting Office, 2000).

According to the United States Justice Department, Federal Bureau of Investigation (FBI), Uniform Crime Report, 1999, there is a negligible amount of crimes directly associated to gambling in the State of Delaware (Figure 12). The FBI classifies gambling crimes to be bookmaking, running numbers, and "other gambling crimes" (Uniform Crime Report, 1999).

Figure 12

Delaware Crimes Associated with Gambling - All Adults				
County	**1990 Gambling Crimes**	**1995 Gambling Crimes**	**1998 Gambling Crimes**	**1999 Gambling Crimes**
New Castle	19	12	34	16
Kent	5	0	7	0
Sussex	0	0	1	2
Total Gambling Crimes	24	12	42	18
Total All Crimes	37,061	29,286	38,134	38,212
% of Total Crimes	0.06%	0.04%	0.11%	0.05%

United States Department of Justice, Federal Bureau of Investigation, Uniform Crime Reports, 1999.

Due to the very small number of gambling crimes reported by the FBI (Figure 12), it is assumed that some gambling crimes are unreported in the Uniform Crime Report. Irrespective of the underreporting of gambling crimes, the low number of reported crimes results in very low criminal justice system costs associated directly with gambling in Delaware.

Divorce Costs

Problem and pathological gamblers have significantly higher rates of divorce than non-gamblers. Among problem gamblers, 39.5 percent of marriages end in divorce, and for pathological gamblers 53.5 percent of marriages end in divorce, as compared to eighteen to thirty percent of the non-gamblers who divorce. A typical divorce costs approximately $20,000 in legal fees. The cost of divorce per problem gambler and pathological gambler is estimated by multiplying the excess number of divorces by $20,000, which equals the legal costs per gambler, per divorce (National Gambling Impact Study Commission, 1999).

Health Costs

More than a third of problem and pathological gamblers report being in poor to moderate physical and mental health, as compared to fourteen percent of low risk gamblers who report the same health status. The annual health care expenditures for pathological gamblers are estimated to exceed those of non-gamblers by an average of $750. Fourteen percent of problem and pathological gamblers, compared to seven

percent of low-risk and non-gamblers, report using mental health services during the past year. In 1996, ten million adults received mental health care for gambling disorders at a total cost of 50 billion dollars or $5,000 per person. This yields an estimated mental health care cost per problem and pathological gambler of approximately $350 per year. The mental health care costs per year for pathological gamblers is found by multiplying the excess 7% mental health care usage by $5,000, which equals $350 (National Gambling Impact Study Commission, 1999).

Total Costs of Gambling

Transfers are costs that represent a shifting of resources from one individual to another, with one person gaining what the other loses (no gains or losses in the Gross National Product). The costs associated with problem and pathological gambling transfers include the costs of bankruptcy, the value of unemployment benefits and welfare benefits. Nationwide, the total cost of problem and pathological minus transfers is four billion dollars annually and 28 billion dollars in lifetime costs. This means that the actual cost of problem and pathological gambling is less than it appears to be because many of the apparent costs are actually transfers from some individuals to others. If transfers are not subtracted, the total cost is five billion dollars annually and 40 billion dollars in lifetime costs (National Gambling Impact Study Commission, 1999).

As compared to alcohol and drug disorders and the associated health problems, problem and pathological gambling costs considerably less annually, both in total and per person with a gambling disorder. The reason for the difference in costs is that many

people with gambling problems have co-occuring medical disorders that are not reported as gambling disorders. Thus, when a gambler incurs medical and social costs, most are not attributed to the gambling problem. Figure 13 compares the annual cost, the prevalence rates and the annual cost per prevalent case of problem and pathological gamblers to other disorders and diseases (National Gambling Impact Study Commission, 1999).

Figure 13
A Comparison of the Lifetime Annual Costs, Prevalence Rates and Cost per Prevalent Case

Type of Problem	Annual Cost (in billions)	Prevalence (in millions)	Annual Cost per Prevalent Case (per person)
Pathological/Problem Gambling	$ 5	5.4	$ 900
Drug Abuse	110	6.7	10,000
Alcohol Abuse	166	13.8	7,000
Mental Illness	105	44	2,300
Stroke	30	3	10,000
Heart Disease	125	21	6,000
Diabetes	92	15.5	5,800
Motor Vehicle Crashes	71	19	3,600
Smoking	72	46	1,500

Source: Gambling Impact and Behavior Study, page 50.

The estimated one-year and lifetime costs of problem and pathological gambling for State of Delaware residents (aged 18 years and above) are shown in Figures 14 and 15.

Figure 14
State of Delaware
Estimated Past Year, Economic Losses Associated to Gambling, 2002

	National Average Cost Per Gambler		Delaware Total Estimated Cost	
Cost	**Problem**	**Pathological**	**Problem**	**Pathological**
Cost to employer due to loss of gambler's job	$200	$320	$462,200	$554,880
Unemployment benefits paid by government (transfer)	$65	$85	$150,215	$147,390
Welfare benefits paid by government (transfer)	$90	$60	$207,990	$104,040
Health Insurance Costs	NE[1]	$700	NE	$1,213,800
Mental Health Insurance Costs[2]	$360	$330	$831,960	NE
Gambling Treatment	NE	$30	NE	$52,020
Total Costs	$715	$1,195	$1,652,365	$2,020,110
Transfers to Gamblers	$155	$145	$358,205	$251,430
Total Costs less transfers	$560	$1,050	$1,294,160	$1,768,680

[1]NE: Not estimated because of no statistically significant differences between the particular type of gamblers and low-risk gamblers.
[2]Mental Health Costs listed for Pathological Gambler but not included in total due to significance level.
Source: National Gambling Impact Study Commission. Gambling Impact and Behavior Study, Submitted by the National Opinion Research Center at the University of Chicago, 1999 National proportions applied to estimated number of gamblers for the Health Services Policy Research Group's 1999 Survey.
Health Services Policy Research Group, 2002.

The "Delaware Total Estimated Cost" (Figure 15) is based on an estimated 1,734 pathological gamblers and the estimated 2,311 problem gamblers in the State of Delaware in the year 2002 (Figure 6). The "Delaware Total Estimated Cost" is found by multiplying the estimated number of problem and pathological gamblers by the national average cost per gambler. For example, 2,311 problem gamblers are multiplied by $200 to find the cost to the employer due to loss of gamblers' jobs. Figure 15 shows the projected lifetime economic losses due to gambling by Delaware residents aged 18 years and older who are problem and pathological gamblers in 2002.

Figure 15
Estimated Lifetime Economic Losses Associated with Gambling, 2002

	National Average Cost Per Gambler		Delaware Total Estimated Cost	
Cost	**Problem**	**Pathological**	**Problem**	**Pathological**
Costs paid by creditors due to bankruptcies by gamblers (transfer)	$1,550	$3,300	$3,582,050	$5,722,200
Costs paid for arrests	$960	$1,250	$2,218,560	$2,167,500
Costs paid by government for corrections	$670	$1,700	$1,548,370	$2,947,800
Costs paid by gambler/spouse for divorce	$1,950	$4,300	$4,506,450	$7,456,200
Total Costs	$5,130	$10,550	$11,855,430	$18,293,700
Transfers to Gamblers	$1,550	$3,300	$3,582,050	$5,722,200
Total Costs less transfers	$3,580	$7,250	$8,273,380	$12,571,500

Source: National Gambling Impact Study Commission. Gambling Impact and Behavior Study, submitted by the National Opinion Research Center at the University of Chicago, 1999. National proportions applied to estimated number of gamblers for the Health Services Policy Research Group's 1999 survey.
Health Services Policy Research Group, 2002.

The Economic Benefits from the Delaware Gambling Industry

As of 1998, all the states in the United States with the exception of Hawaii and Utah had some form of legalized gambling. The total estimated revenue from the gambling was 54.3 billion dollars (General Accounting Office, 2000). The National Opinion Research Center (NORC) at the University of Chicago found that communities that had a casino within a fifty-mile radius had approximately a one percent less unemployment rate than the national average, a seventeen percent decrease in per capita unemployment insurance payments, and welfare costs were less than thirteen percent of the national average (General Accounting Office, 2000).

In 1999, the National Gambling Impact Study Commission (NGISC) issued a final report on a case study of Atlantic City, New Jersey. The NGISC found that legalized gambling employed approximately 500,000 people nationally and fifty thousand individuals in Atlantic City (General Accounting Office, 2000). The study also found that

nationally, in 1995, casinos paid $2.9 billion dollars in federal, state, and local taxes. In 1998, the Atlantic City casinos paid $319 million dollars in gambling taxes to New Jersey, $86 million dollars in property taxes, $41.7 million dollars in school taxes, and $25 million in Atlantic County property taxes. Between 1985 and 1999 the Atlantic City casinos paid $900 million in casino-community reinvestment within Atlantic City. The casino-community reinvestment money is allocated for housing, road improvement, and casino hotel room expansion (General Accounting Office, 2000).

Economic Benefits for Gambling from the Delaware Gambling Industry

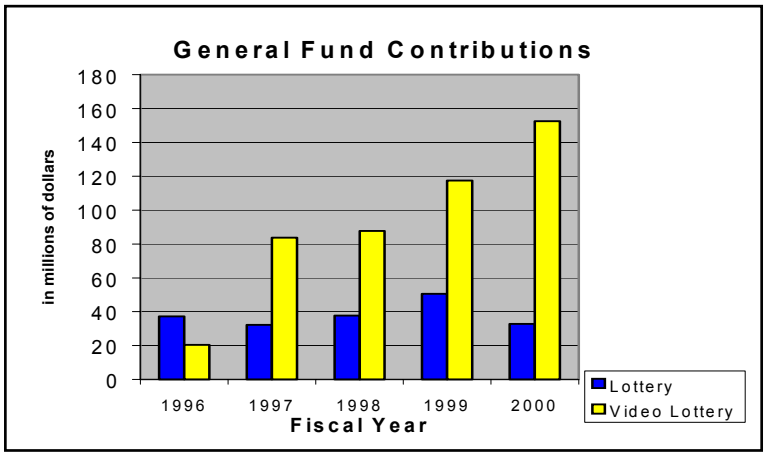
According to the authorizing legislation, the objective of the lottery and the video lottery machines is to "maximize revenue contributions to the State's General Fund, thereby helping to fund the delivery of governmental services to the people of Delaware" (http://lottery.state.de.us/aboutus/-financial.htm). Since its inception in 1974 the lottery has contributed in excess of six hundred and sixteen million dollars to the general fund. The video lottery has contributed approximately six hundred million dollars to the State coffers since December 1995 (http://lottery.state.de.us/aboutus/-financial.htm). The law requires that revenue from the sale of lottery tickets is distributed as follows: at least fifty percent of proceeds are in the form of prizes; thirty percent or more is contributed to the general fund; ten percent is paid in commissions and bonuses; and five percent is allocated for administrative expenses (http://lottery.state.de.wherethe.html).

In December of 1995, the operation of video lottery began and immediately started to produce revenue for the State. Of all the wagers placed, approximately

eighty-seven percent have to be returned to the bettor. The revenue for video lottery is distributed as follows: forty-nine percent goes toward the race track commission, thirty-five percent is allocated to the Delaware General Fund, eleven percent is for increasing the size of the horse race purses, and five percent is for vendor fees (http://lottery.state.de.us/-videolottery.html).

Throughout the past five fiscal years, the general fund contributions from the video lottery have increased steadily, while lottery contributions have fluctuated marginally, averaging $38.1 million dollars annually (Chart 2) (http://lottery.state.de.us/-aboutus/financial.html).

Chart 2



The economic benefits associated with gambling include the revenues that the Lottery and the Video Lottery contribute to the Delaware General Fund. Unlike Atlantic City, New Jersey and Las Vegas, Nevada, which are major tourist destinations that generate additional revenue from hotel and restaurant expenditures, the Delaware

venues attract mostly patrons from Delaware and the nearby areas of Pennsylvania, Maryland, and New Jersey. Most of those who come to Delaware to gamble do not need hotel accommodations because they are visiting for less than 24 hours. The net contribution to the Delaware economy and the number of employees employed in the gambling labor force is proportionally lower in Delaware than in Atlantic City and Las Vegas.

The Public Perception of Gambling

It is important to consider the public's perception of gambling because it explains some of the intangible costs and benefits of gambling. Regardless of the economic benefits and costs of gambling, the expansion of legalized gambling is significantly dependent on a community's perception of the social effects of the gambling industry. Between 1988 and 1995 there was a nationwide explosion in legalized gambling. Since 1996, however, the only state to legalize casino gambling has been Michigan (Stitt, Nichols, and Giacopassi, 2000). One theory offers that the absence of new casinos is due to the commonly held perception of the adverse consequences of legalization, such as an increase in pathological and problem gamblers and the increase in crime. The public perception of gambling is important to elected officials since most legalized gambling must be approved by a referendum (Stitt, Nichols, and Giacopassi, 2000).

A survey conducted in seven Michigan communities where casinos were recently opened assessed the general public's perception of problem gambling. The respondents were asked three types of questions, which included background

information, personal experience with gambling, and the perception of the effects that casinos had on their communities. The respondents felt that sixteen percent of their community members had gambling problem, and thirty-two percent of respondents reported at least one friend with a gambling problem (Stitt, Nichols, and Giacopassi, 2000). People who had a friend or relative with a gambling problem were twice as likely to perceive a high percentage of compulsive gamblers in their community as those without such close connections to gambling. This suggests a "close to home" effect, wherein if someone who an individual knows has a gambling problem, the person will perceive a considerably higher percentage of pathological gambling in the community than actually is the case (Stitt, Nichols, and Giacopassi, 2000, page 433). The survey asked respondents their perception of whether "casinos operate in a law-abiding manner, casinos cause an increase in crime, gambling is immoral, casinos are connected to organized crime, and whether the community made the right choice in legalizing gambling" (Stitt, Nichols, and Giacopassi, 2000, page 442). The individuals who perceived that casinos were operating in a law abiding manner, and that the community made the right decision in legalizing gambling, were less likely to perceive a high prevalence of problem gambling in their communities. Conversely, respondents who thought that casinos contributed to an increase in crime, and were connected to organized crime, perceived that there were a high percentage of compulsive gamblers in their communities (Stitt, Nichols, and Giacopassi, 2000).

A similar survey was completed in Nevada to examine Nevada residents' perceptions of gambling in their communities. The survey's objective was to determine

whether gambling was viewed as “creating jobs, attracting tourists, and generating much needed local and state tax revenue,” or whether gambling was perceived as creating significant social problems to the host community, such as crime and corruption (Roehl, 1999, page 223). The survey was designed to investigate the community perception of the impact that gambling has on a community.

In previous surveys it was found that economic growth, in particular the expansion of labor force in restaurants, hotels, and entertainment, was regarded as the primary benefit created by the gambling industry. The negative impacts of the gambling industry were reported to be crowding, a crime increase, and “the displacement of local residents by tourists” (Roehl, 1999, page 224). In sum, individuals who benefited from the tourism supported gambling. Those who did not benefit directly from legalized gambling did not support expansion of gambling in their communities (Roehl, 1999).

In the Nevada survey, a majority of the respondents agreed that gambling stimulated employment growth in Nevada, but they also agreed that people frequently gambled more than they could afford. “Forty-five percent of respondents agreed or strongly agreed that Nevada was a better place to live because of gambling, whereas, thirty-five percent felt that their community was a better place to live because of gambling” (Roehl, 1999, page 225). Individuals who lived in the metropolitan areas of Nevada and had a high school diploma or less, were more likely than all other respondents to view significant levels of negative social impacts caused by gambling.

Conversely, people without any young children were least likely to perceive any negative social impacts from gambling (Roehl, 1999).

Chapter 4
Conclusion

The percentage of Delaware residents (aged 18 years of age and above) who are pathological gamblers is slightly lower than the national average. However, the number of at-risk gamblers in the State (those with gambling disorders that do not reach the clinical threshold for problem gambling or pathological gambling) has increased between 1988 and 2002. This suggests the potential for a substantial increase in the prevalence of problem gambling and pathological gambling in the future.

Besides the approximately 1,700 pathological gamblers who are Delaware residents, there are another 36,000 residents (aged 18 years and above) who have sub-clinical problems associated with gambling. The problem gambling population is characterized by health risks, including smoking, substance abuse, obesity, hypertension, and lack of exercise. Many of these behaviors are not a direct result of gambling, but are embedded in a high-risk lifestyle.

The 1,700 Delaware residents who are pathological gamblers could benefit from treatment. Because of the relatively small number of pathological gamblers, the total costs and consequences of pathological gambling are relatively low.

Another 36,000 Delawareans have gambling problems that do not reach the clinical threshold of pathological gambling. Many of these individuals could benefit from educational programs, short-term interventions, alternative forms of recreation, and

opportunities for volunteer activities, or productive employment. Many gamblers with sub clinical problems have unhealthy lifestyles and could benefit from prevention programs that focus on a variety of health and social problems besides gambling.

When computing the social costs and consequences of gambling in Delaware by applying the Delaware prevalence rates to the fractions of the national average costs, the aggregate of the social costs of gambling appears to be relatively small compared to the economic benefits produced by the gambling industry. Nevertheless, problem gambling detracts significantly from the quality of life of approximately 38,000 Delaware residents over the age of 18 years.

References

American Psychiatric Association. 1994. Diagnostic and Statistical Manual of Mental Disorders: Fourth Edition (DSM-IV), 615-618.

Agresti, A. and Finlay, B. 1997. Statistical Methods for the Social Sciences. Prentice-Hall.

Boardman, A. 1996. Cost-Benefit Analysis: Concepts and Practice. NJ: Prentice Hall.

Christensen, M., Patsdaughter, C., and Babington, L. 2001. Health Care Providers' Experiences with Problem Gamblers. Journal of Gambling Studies, 17(1): 71-79.

Delaware Code Annotated, 28 Del. C. 1102. 2001. Bingo and Charitable Gambling.

Fisher, S. 2002. Measuring the Prevalence of Sector-Specific Problem Gambling: A Study of Casino Patrons. Journal of Gambling Studies, 16(1): 25-51.

General Accounting Office. 2000. Impact of Gambling: Economic Effects More Measurable Than Social Effects, April.

Goodman, R. 1995. The Luck Business. NY: Free Press Paperbacks.

Health Services Policy Research Group, University of Delaware. 1999. High Risk Area Study.

Health Services Policy Research Group, University of Delaware. 1999. Problem Gambling in Delaware, August.

Health Services Policy Research Group, University of Delaware. 1999. Young Adult Study.

Hing, N., and Breen, H. 2001. Profiling Lady Luck: An Empirical Study of Gambling and Problem Gambling Amongst Female Club Members. Journal of Gambling Studies, 17(1): 47-69.

Kindt, J. 1994. Íncreased Crime and Legalizing Gambling Operations: The Impact on the Socio-Economics of Business and Government. *Criminal Law Bulletin* (November-December).

Layton, A. and Worthington, A. 1999. The Impact of Socio-Economic Factors on Gambling Expenditures. International Journal of Social Economics, 26(1,2,3): 430-440.

Lesieur, H. 1998. Costs and Treatment of Pathological Gambling. Annals of the American Academy of Political and Social Science (Gambling: Socioeconomic Impacts and Public Policy, J.H. Frey, special editor). March.

McNeilly, D., and Burke, W. 2000. Late Life Gambling: The Attitudes and Behaviors of Older Adults. Journal of Gambling Studies, 16(4): 393-415.

Miller, R. and Blair, P. 1985. Input-Output Analysis: Foundations and Extensions. NJ: Prentice-Hall.

National Gambling Impact Study Commission. 1999. Gambling Impact and Behavior Study, March 18.

Potenza, M., Kosten, T., and Rounsaville, B. 2001. Pathological Gambling. Journal of the American Medical Association, 286(2).

Roehl, W. 1999. Quality of Life Issues in a Casino Destination. Journal of Business Research, 44: 223-229.

State of Delaware. 2000. Delaware State Lottery Office. Video Lottery Regulations, September 11.

State of Delaware. 2002. http://lottery.state.de.us/aboutus/history.html

State of Delaware. 2002. http://lottery.state.de.us/aboutus/financial.html

State of Delaware. 2002. http://lottery.state.de.us/products/-vdodata/-modat2001.html

State of Delaware. 2002. http://lottery.state.de.us/wherethe.html.

Stitt, G., Nichols, M., and Giacopassi, D. 2000. Perceptions of the Extent of Problem Gambling Within New Casino Communities. Journal of Gambling Studies, 16(4): 433-451.

Thompson, W., Gazel, R., and Rickmand, D. 1996. *The Social Costs of Gambling in Wisconsin*, A Report prepared for the Wisconsin Policy Research Institute.

University of Delaware. Center for Applied Demography and Survey Research. 2002. www.cadsr.udel.edu.

Volberg, R., Moore, W., Christiansen, E., Cummings, W., and Banks, S. 1998. Unaffordable Losses: Estimating the Proportion of Gambling Revenues Derived from Problem Gamblers, *Gaming Law Review, 2*(4): 349-360.

Volberg, R. 1998. *Gambling and Problem Gaming in Oregon. A Report to the Oregon Gambling Addiction Treatment Foundation.* Gemini Research, Ltd., Northampton, MA.

Westphal, J., Rush, J., and Stevens, L. 1998. *Problem and Pathological Gambling Behaviors within Specific Populations in the State of Indiana.* A Report to the Indiana Department of Administration and Family Social Services Administration.

Appendix A

Methodology for Computing Benefits and Costs of Gambling

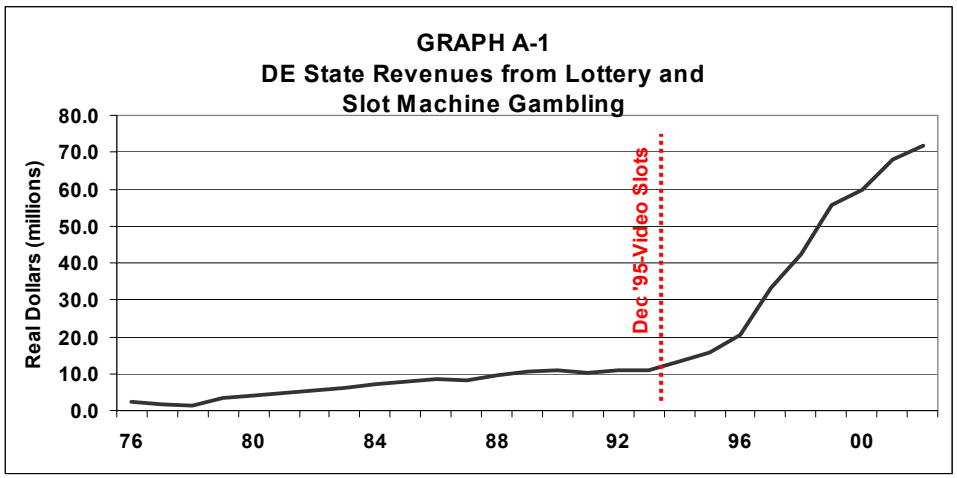
Tax revenues accruing from the Lottery and slot machines since the inception of the Delaware Lottery (1976) were credited to the Delaware General Fund. These revenues are used in the economic benefit calculations (Table A-1). Revenues are calculated in nominal (inclusive of inflation) dollars. Between 1976 and 1995, Delaware Lottery revenues rose from $2.3 million to $43.2 million annually. The 1976 Lottery revenues accounted for a very small proportion of General Fund revenues (0.6%). The revenue stream appears to have stabilized in the 1990s at the limited volume of 2.2 % of General Fund revenues and then peaked at 2.7% of General Fund monies before legalization in 1995.

Table A1
Delaware State Revenues from Lottery and Slot Machine Gambling

Lottery Year	Actual Revenues ($ in Millions)	% of Total Revenues	Slot Machines Year	Actual Revenues ($ in Millions)	% of Total General Fund Revenues
1976	2.3	0.6	1990	25.0	2.2
1977	1.9	0.5	1991	25.3	2.2
1978	1.6	0.3	1992	28.0	2.2
1979	4.2	0.8	1993	29.0	2.2
1980	5.5	1.0	1994	35.6	2.5
1981	7.3	1.2	1995	43.2	2.7
1982	9.5	1.5	1996	57.8	3.5
1983	11.0	1.6	1997	96.0	5.4
1984	13.3	1.7	1998	125.4	6.1
1985	15.5	1.8	1999	168.0	7.7
1986	17.0	1.9	2000	185.4	8.1
1987	16.8	1.7	2001	204.6	8.8
1988	20.5	2.0	2002[b]	216.4	9.2
1989	23.2	2.1			

[b]Except 2002 estimated by DEFAC. [a]Source: Delaware Fiscal Notebook

Legalization of slot machines in December 1995 was followed by a substantial increase in gambling tax revenues for the General Fund. This increase is illustrated on Graph A-1. Both slot machine revenues and lottery revenues have risen jointly, from 3.5% of General Fund revenues ($57.8 million) in 1996 to a large portion (9.2%) of General Fund revenues ($216.4 million). This total increase has been 401% over the seven years between 1995 and 2002



Delaware Fiscal Notebook

Increases in Employment in Race Track Operations

Table A-2 shows employment in racetrack operations (including slot machines) between 1995 and 1999 and several employment multipliers of racetrack operations in Delaware where slot gambling is legally permitted. The data do not permit the separation of labor allocated to horse racing and to slot gambling.

Table A-2
Delaware Employment in Racing Track Operations

A. Employment*	
1995	500-999
1996	1,000-2,499
1997	1,000-2,499
1998	1,000-2,499
1999	1,000-2,499
B. Multipliers	
A. Employment multiplier:	1.536
B. # of Indirect/Induced Jobs per 1,000 direct jobs:	536.0
C. Wage multiplier:	1.749

**Exact employment not given due to confidentiality regulations. Sources: U.S. Census Bureau, Delaware County Business Patterns; Delaware Input/Output Model.*

The number of employees has remained constant (within a range of 1,000 to 2,499) over the last five years (Table A-2). A comparison of lower bound estimates shows that employment over the 5-year period has doubled, however the increase occurred during the first year of legalization (1995). When the upper bound estimates are compared, racetrack employment rose nearly two and half times after slot machine gambling legalization. While stability in employment is indicated, the low and high range estimates could obscure much variation within each year. Finally, it must be noted that racetrack employment comprises only a miniscule proportion of Delaware's labor force, but the slot machines account for substantial revenues of the State government general fund.

In general, multipliers measure the association of income, output (goods and services), or income (or wages) in one sector (e.g., racetrack operations) with corresponding income, output, and income of the total economy, in this case Delaware.

A multiplier indicates the linkage of the activity of on sector with the activity of another sector, and how change in one sector affects changes in other sectors. Section B of Table A-2 shows three multipliers (Miller and Blair, 1985). The employment multiplier of 1.536 (Line A) indicates that for each job created in Delaware racetrack operations, there is approximately half of a job (.536) created in the Delaware economy.

The multiplier (Line B) indicates the number of non-race track jobs directly attributable to racetrack jobs. The multiplier shows that there are 536 other (indirect) jobs generated (or induced) in the Delaware economy by for every 1,000 jobs in racetrack operations. Thus, using the upper bound of employment in racetrack operations of 2,499 (or 2,500 for calculation purposes); there are an additional 1,340 jobs which are produced by racetrack employment, [1,340 = 536 x (2,500/1,000)]. If race track jobs declined by 500 from the upper bound estimate of 2,500 (2,000 = 2,500-500), then jobs connected to race track operations elsewhere in the economy would decrease by 268 or, 268=[(536 x (500/1,000)]. The permanency and impact of this decline depends on the economic conditions that prevail at the time of the loss in racetrack and non-race track jobs.

The wage multiplier of 1.749 (Line C) is the value of wages in both race and non-race track jobs that are generated throughout the economy for each $1.00 in wages/income in racetrack jobs. That is, a total of $1.75 in wages earned in the economy is attributable to every $1.00 paid to individuals in racetrack jobs. So if, for example, $1,000,000 were earned as wages in racetrack jobs, then the total

income/wages earned in Delaware because of jobs connected with racetrack employee remuneration is $1,749,000 (= 1.749 x $1,000,000). Alternatively, for $1,000,000 in wages earned from slots gambling/racetrack jobs directly, $749,000 is earned in other jobs that are induced by racetrack wage earnings. Thus if wage income were to fall (rise) by $200,000, then there would be a wage loss (gain) of $349,000 (1.749 x $200,000), in the Delaware economy attributed to race track employment, of which $200,000 would be due directly to racetrack employees and $149,000 to income loss (gain) to jobs in other sectors. As with job multipliers, the permanency and impact of wage increase or decrease depends on the economic conditions that prevail at the time of the change in racetrack and non-race track earnings.

Several important limitations of this methodology may affect the results. First, the multipliers presented here are not compared with multipliers of other sectors and other types of jobs, which could have higher or lower multiplier values and thus greater or lesser impacts on the Delaware labor force. For example, for miscellaneous retail stores, the employment multiplier is 1.3 and the wage multiplier is 1.4, both of which are lower then their respective multipliers for race track operations. In contrast, the employment and wage multipliers for chemical manufacturing are respectively 3.2 and 1.8, which exceed the values of the same multipliers for racetrack operations.

The impact of the multipliers also depends on economic conditions. If the economy is functioning at full capacity, i.e., at full employment, the multiplier may provide only a temporary impact on the economy. Under full employment, initiating new

jobs in an industry may mean that employment and wage transfers occur, with no growth in productivity. When either employment in a "new" industry or an expansion of an existing industry occurs, additional jobs and wages are stimulated in the new industry and a number of jobs and wages are induced in other sectors. However, an increase in jobs in one industry may result in loss of jobs other industries. This results because there is a high demand for labor and an insufficient number of workers. If less than full employment prevails, the job and wage multipliers indicate the total number of workers and wages (direct and induced) that would result if a "new" industry or additional employment would occur in an existing industry (until full employment is reached).

Since 1992, Delaware has consistently registered an unemployment rate of less than 5.5%, lower than national average. When increases in jobs and wages occurred in the gambling sector, the main effects were job transfers and wage transfers, rather than economic growth. In periods of less than full employment, the multipliers associated for racetrack operations (cited above) should have a significant positive impact on productivity. When policymakers must choose among sectors of the labor force for economic development, normally stimulation of the sectors with the highest multipliers will produce the greatest growth.

Social Costs of Gambling in Delaware

Gambling has both social costs and social benefits. These two classifications are based on economic methodology of cost benefit analysis (e.g., Boardman, et al.,

2001). Social costs are the value of harms incurred by individuals (singularly or as group members, e.g. agencies, families, government) that are directly and indirectly caused or attributed to gambling activities. Benefits are the direct and indirect value that individuals (singularly or as group members, e.g., agencies, families, government) obtained from gambling activities.

Individuals also may receive value or benefit from gambling. As a consumption good, gambling can provide enjoyment (as a form of entertainment, and through social interactions) and thus can yield utility. By participating in games, individuals may not impose any social and economic harm to themselves or others (aside from social disapproval based upon a value judgment about the appropriateness of behavior). Gambling can also provide economic benefits to other individuals, and to firms, communities and government. Gambling can be a source of wages and employment, can produce income from gambling and non-gambling firms, and can generate governmental revenues from the taxation of gambling winnings and property taxes. Benefits for the public programs financed from gambling revenues would be foregone if these taxes were not applied (unless other programs were cut instead of the gambling taxed funded programs).

Researchers have identified numerous social costs of problem and pathological gambling (Lesieur and Anderson, 1995, Thompson, Gazel, and Rickman, 1996; Lesieur, 1998; Volberg et al., 1998; Westphal, Rush, and Stevens, 1998). The social costs of gambling can be classified as both intangible and tangible. Intangible costs are not

readily valued. For example, fractured families, ineffective parenting, and dysfunctional interpersonal relationships are negative consequences of gambling that are difficult to measure in dollar terms. The tangible costs of gambling are easier to measure. Several studies have estimated the tangible social costs (Lesieur and Anderson, 1995; Thompson, Gazel, and Rickman, 1996; Lesieur, 1998; Volberg et al., 1998; Westphal, Rush, and Stevens, 1998; Goodman, 1994; Kindt, 1994). The estimates of costs per problem gambler have varied substantially. The Gambling Impact and Behavior Study conducted by the National Gambling Impact Study Commission, has drawn on the past gambling studies and devised a methodology for estimating social costs that has refined and improved on past methodologies (NORC, 1999). This approach is consistent with economic theory and cost-benefit analysis (Boardman et al., 2001), and produces an approximation of the harm attributed to problem and pathological gambling.

Estimates of the social costs of gambling in Delaware are derived by the same methodology as the National Impact Study. First, an estimate of the number of problem and pathological gamblers is made. Then an estimate of criminal justice costs, treatment costs, social service costs, and economic productivity costs are calculated. A basic premise of the National Study methodology is that estimates of social costs must be based on calculation of direct costs. This approach entails estimation of the costs and consequences that are the direct result of pathological gambling – costs that would not have been incurred unless a clinically-defined gambling disorders were present.

Both gamblers and non-gamblers are often abusers of alcohol (or drugs). Substance abuse has adverse consequences, such as unemployment and divorce, apart from gambling. It is necessary to take into account the impact of these co-occurring risk factors and behaviors in order to ascertain the amount of effect attributable to gambling problems. This study also focuses on the effect of age, gender, income, and family background on gambling patterns. For instance, problem and pathological gamblers may experience divorce at the same or even different rates.

The National Impact Study first ascertained whether the rate or prevalence of each selected adverse consequence among problem and pathological gamblers was greater than the rate/prevalence of other types of gamblers. The rate or prevalence for an adverse consequence for problem and pathological gamblers based on the similar characteristics and behaviors of other gambling types is calculated and defined as the "expected" rate (or predicted rate) of an adverse outcome. This expected rate for problem and pathological gamblers is then subtracted from their actual rate/prevalence to obtain their "excessive" rate/prevalence. The excessive rate is then applied to the total number of problem and pathological gamblers to determine the sole number of such gamblers for which social costs of the adverse consequence can be estimated. A social cost in dollars for each unit of an adverse outcome was taken from various empirical studies that have investigated the monetary value of the selected harm. This social cost per unit of harm is then multiplied by the number of problem and pathological gamblers who were signified as having adverse consequences due solely to gambling problems. Finally, the resulting total cost figures were averaged across all problem and

pathological gamblers by dividing the total social costs by the total number of such gamblers.

For the Delaware study, we applied the excessive rates to the Lifetime costs, using logistic regression to control for sociemographic factors. These are strongly predictive of whether individuals had experienced costly consequences. Ignoring them would result in attributing a larger proportion of consequences to gambling than if controls were applied.

Costs measured on annualized basis, present value basis: poor physical health and mental health, job losses/unemployment (per year basis). Other costs are infrequent, and are measured on a lifetime basis. Have you ever been divorced? So lifetime costs are observed and measured on a lifetime basis. Based on a combined and weighted survey (supplemental survey of patrons and adult telephone survey), we reweighted these groups to make weighted samples generally equivalent to the age and gender distribution of the population of 197 million adults age 18 and older in 1998.

Estimates of the social costs of gambling in Delaware are based on five gambling patterns: (1) non-gambler, (2) low risk gambler, (3) at risk gambler, (4) problem gambler, and (5) pathological gambler (Figure 5, Criteria for Classifying Gamblers). These classifications are derived from the DSM-IV criteria for pathological gambling (Figure 1, DSM-IV Criteria for Classifying Gamblers).

Appendix B

Focus Groups with Problem Gamblers and Treatment Providers

Two focus groups were conducted. One group consisted of five members of Gamblers Anonymous. The other consisted of seven treatment professionals who provided therapy to problem gamblers. The focus groups provided specific examples of the effect of gambling on the quality of life of both the gambler and his family. The consequences are registered throughout interconnected social networks, including the family, workplace, and community.

Problem Gamblers Focus Group

On May 1, 2002 a focus group was conducted with five active members of Gamblers Anonymous. Being active in Gamblers Anonymous usually means that one is not currently gambling, but that one is still considered to be a compulsive gambler. This focus group was made up of white-collar Caucasian males between the ages of forty-five to sixty-five years of age. All members of the group characterized themselves as compulsive gamblers. Their preferred venues included sports betting, casino games, and slot machines. The majority had been gamblers for most of their adult lives. All of the respondents were in a substantial amount of debt at the time that they became actively involved in Gamblers Anonymous. All had been treated for pathological gambling and had been in remission for at least one year. They openly discussed all of the topics of the Moderators Guide and offered many examples of the costs and consequences of compulsive gambling.

The Moderators Guide included the following topics:

1. What comes into your mind when I ask about consequences of gambling?
2. What comes into your mind when I ask you about the costs of gambling?
3. Which of these things go with gambling?

   -depression

   -smoking

   -drinking

   -being disliked by your family and others

   -being connected to crime

   -drugs
4. What are some the personal problems associated to gambling?

   -divorce/separation

   -bankruptcy

   -loss of a job

   -doing badly at school

   -being avoided by peers
5. Compare a gambling disorder with another disorder that lasts a minimum of several years

   -blindness

   -a leg amputated at the knee

   -having a drug habit

   -not being able to use your right arm
6. Would gambling be a problem if it weren't available close to home?

7. What are some of the things that happened to you because of gambling?

Gambling had dominated every moment their lives. It wasn't until some critical event, such as the onset of depression, or a wife's threatening divorce, that any of the group sought treatment. The explanation for waiting for twenty years before attempting to quit (according to several respondents) was that gambling had been relatively easy to conceal. The respondents perceived that the amount of gambling that they were doing when they quit was "normal," apparently because their reference group consisted of peers who were also pathological gamblers, thereby providing support for the normalization of their behavior. By the time they attended their first Gamblers Anonymous meeting, they were all severely depressed. They attributed their depression to both their overwhelming debt and continuously lying about their behavior. One respondent explained: "The most depressing thing for me was winning four thousand dollars and not being able to tell anyone," because he had promised his wife that he had given up gambling. Several respondents reported that they had been medicated to treat their depression. According to another respondent, approximately nineteen percent of compulsive gamblers become so severely depressed that they commit suicide.

When asked about their own costs and consequences of gambling, a number of specific examples were given. One respondent indicated that when he was gambling he lived two entirely separate lives. One life was centered on lying and deception. The other life involved acting on his insatiable urge to gamble. All of the

respondents reported that they constantly lied to family members to cover up the amount of money lost and that they lied to their employers about why they had missed work. They were unanimous in their admission that when they were gambling they totally ignored their wives and children. One respondent explained the situation in this way: “It’s not that I didn’t love my family, because I did. It’s just that I didn’t care what was going on in their lives.” Another remembered that when his wife somehow kept him from placing his bets, he made life miserable for the entire family. None of the respondents had divorced, however several said that their wives had threatened to leave them if they did not seek treatment. The majority denied that they ever engaged in illegal activity to support their gambling. One respondent was hesitant to discuss his criminal past, admitting that he was a bookmaker at one point in his life.

None of the participants had declared bankruptcy, however the majority had been active with Consumer Credit Counseling for debt counseling. The average debt for a person entering Gamblers Anonymous, one participant reported, is approximately one hundred thousand dollars. However the majority indicated that their own debt was considerably higher than that amount. One participant explained that Gamblers Anonymous discourages declaring bankruptcy because it increases the chance of an individual’s regressing to gambling after declaring because he perceives himself as no longer being accountable for his debt.

The majority of respondents confirmed that during their gambling period they also had problems with other addictions, including alcohol, tobacco, food, and being workaholics. One respondent indicated that he once smoked a minimum of three packs of cigarettes a day. Most of the group agreed that they had been risk takers throughout their lives, and they all agreed that "nothing compares to a high that a gambler gets when he places a wager."

When asked whether the legalization of slot machines in Delaware encouraged compulsive gambling, most indicated that it wasn't specifically the slot machines that enabled their gambling, but rather the overall increase in access to gambling of all kinds. The respondents reported that when they were children, those who wanted to gamble had to work to find illegal gambling. With the advent of the Lottery and slot machines, however, other forms of legal gambling have become increasingly available. These include additional lottery games, computer gambling, and casinos in nearby states. A final observation regarding legalized gambling was that compulsive gambling was enabled by making ATMs readily available at gambling establishments.

Consistent with national surveys of problem and pathological gamblers, the focus group perceived that the number of problem gamblers in Delaware was considerably higher than the number indicated by the Delaware Gambling Survey. All agreed with one subject's pronouncement that there has to be "way more than ten percent of (of the population) who are problem gamblers".

Several ideas for prevention efforts were offered. Because acceptance of gambling is learned when people are young, prevention should be targeted to people of high school and college age. Older adults should also be educated about the potential addictiveness of slot machine gambling. The perception that a high proportion of older people have gambling problems was explained by the disproportionate number of older people observed playing the slot machines.

Treatment Providers Focus Group

A second focus group was conducted with seven treatment providers who worked with problem gamblers.

- The seven therapists treated an average of 35 clients each during the last year (January-December 2001). The typical client was seen for an average of 11 sessions. Over nine of every ten clients continued therapy after the initial session. An average of 20 clients was referred to each of the therapists by the Delaware Council on Gambling Problems over the last year.

- Most referrals were made without an evaluation based on a clinical screening instrument. All of the treatment providers administered a clinical screening instrument to diagnose problem gambling. Two of the therapists used the ASI gambling scale; two used the NODS, one used the South Oaks Gambling Screen, and one used the DCGP.

- Half of the therapists indicated that some clients had difficulty gaining access to treatment. Other issues included: the absence of legal assistance for compulsive gamblers, the paucity of advertising about treatment availability, lack of funding for treatment, and the unavailability of inpatient treatment for gambling disorders.

- Many of the clients seen by these therapists during the last year had other psychological disorders that co-occurred with gambling disorders.

  The average percentage of clients with co-occurring problems seen by each therapist was reported as follows:

Major Depression	50
Bipolar	20
Panic Disorder	5
Agoraphobia	0
Social Phobia	5
Obsessive Compulsive Disorder (OCD)	3
General Anxiety Disorder (GAD)	5
Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder (ADD/ADHD)	20
Avoidant Personality	2
Alcohol abusive or dependent	30
Drug abusive or dependent	10

- All seven respondents reported that one or more of their clients with gambling disorders was under treatment for these co-occurring psychological disorders. The treatments included medication, outpatient and inpatient psychiatric therapy, alcohol and drug treatment, counseling, Alcoholic Anonymous (AA), Narcotics Anonymous (NA), Gamblers Anonymous (GA), and mental health therapy.

- The average percentage of clients presenting each of the following behaviors was reported:

Preoccupied with gambling	100
Gambled with increased amounts to achieve excitement	100
Attempted unsuccessfully to control gambling	75
Restless/irritable when cutting down or stopping gambling	75
Gambled to escape problems or dysphonic mood	70
After lost money gambling returned to get even	95
Lied to conceal extent of gambling	90
Committed illegal acts to obtain money for gambling	30
Jeopardized or lost significant relationship, job, etc.	75
Relied on others for money for gambling	50

- The following behaviors, were perceived to cause the greatest financial problems to the gamblers:

  Preoccupation with gambling, committing illegal acts, and gambling increased amounts of money, running up credit cards, chasing lost money to get even

- The following behaviors, were reported to cause the greatest financial problems to the gamblers' families:

Gambling increased amounts of money, chasing, lying, running up credit cards, preoccupation with gambling

- The following behaviors, were reported to cause the greatest financial problems to the gamblers' communities:

  Lying, illegal acts, theft

- During the past year, the following percentage of clients was reported to experience each of the following problems because of gambling:

Lost a Job	50
Declared bankruptcy	10
Were arrested	25
Convicted of a crime	10
Been Divorced	15
Had poor physical health	20
Had poor mental health	75

- Gambling problems were associated with the following factors (number of therapists mentioning factor):

Dropping out of high school	1
Dropping out of college	2
Doing poorly in school	2
Being unemployed	4
Disabled in last year	3
Divorced	3
Separated from spouse or significant other	4
Widowed	2
Parent had a gambling problem	5
Had first child in last year	1
Last child left the household	2
Is an angry parent	2
Death of a loved one	2
Parent had a drug problem	3
Parent had an alcohol problem	5
Spouse/partner disabled during the last year	1

- Predominant demographic characteristics of the problem gamblers, according to the seven respondents: "All possible, black and white, male and female, not applicable, Caucasian, middle-aged, male-white-Protestant."

- Indications of medical and psychological problems in your practice .(number of mentions):

irritability	3
anxiety	5
excessive worry	4
antisocial behavior	2
divorce	1
disruption of interpersonal relationships	4
low self-esteem	5
poor social skills	4
avoidance	1
guilt	4
sleep disturbances	4
excessive use of alcohol or sedatives	4
stubbornness	1
pessimism	2
self doubt	4
abuse of substances	2
insomnia	4

The seven treatment providers completed the following exercise, which was designed to compare the quality of life associated with gambling disorders- in contrast to that associated with other health problems. **Each of the following scenarios is an example of diseases or disorders that an individual could experience. How you would rate the quality of life of a person having each disorder or disease. Place an "X" between the reference points at the appropriate place, where you would rate the quality of life for a particular disease or disorder**. The X's in the following diagrams represent the median ratings of the seven therapists for each disorder.

Place an "X" on the continuum where you believe this condition lies between total wellness and immediate death

0= Total Wellness 1= Immediate Death.

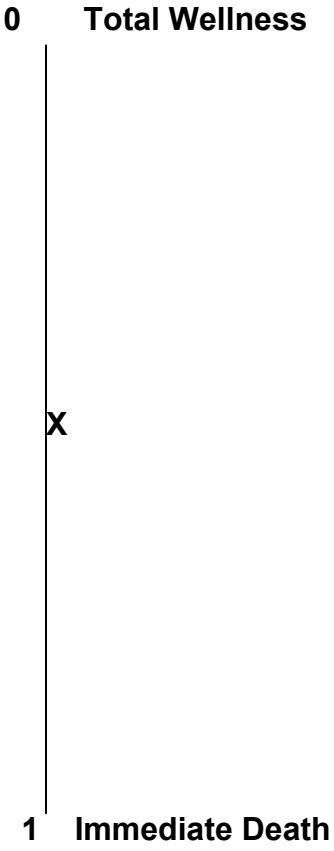
<u>40 year old male who has total blindness for the rest of his life</u>
X = Median Score

0 Total Wellness

1 Immediate Death

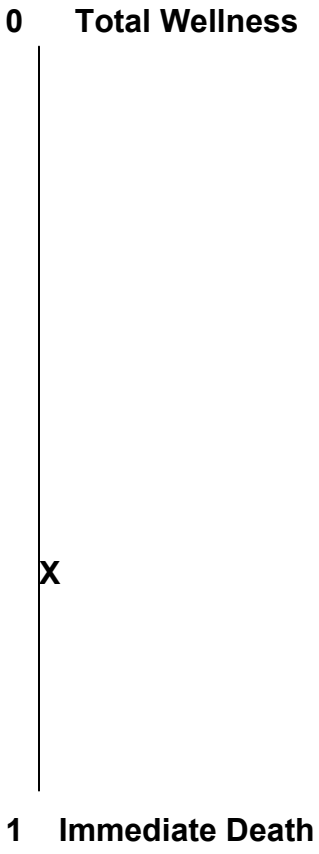
Place an "X" on the continuum where you believe this condition lies between total wellness and immediate death

40 year old male that has a severe headache and nausea condition that prevents him from holding a job for the next five years



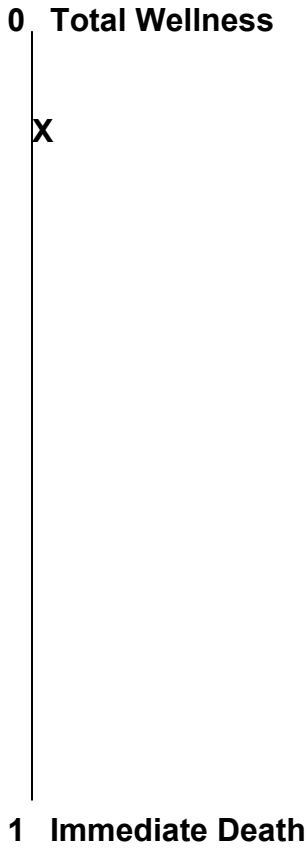
Place an "X" on the continuum where you believe this condition lies between total wellness and immediate death

<u>40 year old male who has quadriplegia for the rest of his life</u>



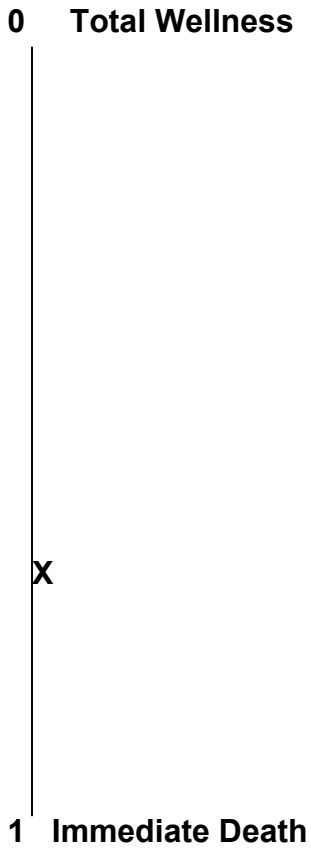
Place an "X" on the continuum where you believe this condition lies between total wellness and immediate death

<u>40 year old male who has a fracture of the lower arm in a stiff cast for 8 weeks</u>



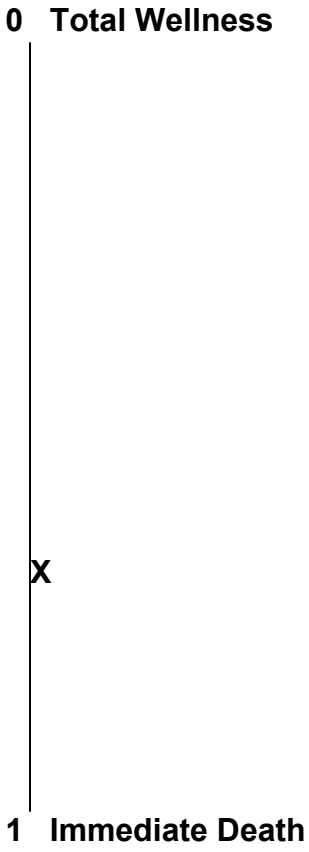
Place an "X" on the continuum where you believe this condition lies between total wellness and immediate death

<u>40 year old male who is a pathological gambler for the next 20 years</u>



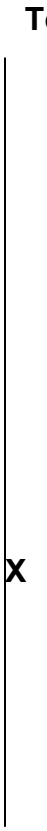
Place an "X" on the continuum where you believe this condition lies between total wellness and immediate death

<u>40 year old male who is bi-polar for the rest of his life</u>



Place an "X" on the continuum where you believe this condition lies between total wellness and immediate death

40 year old male who has severe depression for the next 20 years



Pathological gambling is rated within the same range as severe depression and bi-polar disorders with respect to the quality of life associated with those disorders.

Other costs and consequences of problem gambling (that you encountered in your patients/clients) that should be considered in this study. The following costs and consequences were mentioned:

- Suicide, impact on gambler's children, effect of a large win
- Problems to the state caused by the avoid ability of legal problems
- There is very little funding/insurance to treat gambling addiction. There are very few inpatient facilities with any knowledge of gambling treatment.
- There are other co-occurring problems (Axis 2 of the DSM-IV): i.e., narcissism, antisocial social (personality disorder), and obsessive compulsion.
- The remarkable increase in problem gambling among middle-aged women. In 1976, when New Jersey became the second legal casino venue, problem gamblers were about 95% males. With the proliferation of legal slot machine venues, the rate among women is now 40%. This is an important issue.
- I have three clients who have embezzled over $500,000 each from their employers and who are either in jail or going to jail. This is a consequence to them, society, and their families - who depend on them to generate income for support.