

**WHAT DO WE KNOW ABOUT GAMBLING  
AND PROBLEM GAMBLING  
IN NEW ZEALAND?**

**Report Number Seven of the New Zealand Gaming Survey**

**Max Wenden Abbott**

**June 2001**

## **Acknowledgements**

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## **Dedication**

This volume is dedicated to Margaret de Joux, who retired shortly before its publication from her position as Research Manager for the Department of Internal Affairs. Margaret made a lifelong contribution to public service in New Zealand and throughout displayed qualities of integrity, diligence, common sense and good humour that serve as a model for colleagues.

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## Chief Executive's Foreword

*What do we know about gambling and problem gambling in New Zealand* is the seventh and final report from the New Zealand Gaming Survey.

The study provides a synthesis of major findings from the New Zealand Gaming survey and other recent New Zealand gambling-related research. It caps off four years of sustained work examining the extent and nature of problem gambling in New Zealand.

I would like to thank all those involved in this major project, in particular, Professor Max Abbott who is recognised as one of the world's leading experts in the field of problem gambling research. I know that he has applied all that experience and expertise in his role as project leader of the New Zealand Gaming Survey. Others contributing prominently to one or more of the seven individual reports making up the Survey included Dr Rachel Volberg, Statistics New Zealand, Maynard Williams, Brian McKenna, Lynne Giles and the National Research Bureau. I would also like to thank the many New Zealanders whose willingness to give up their valuable spare time to participate in interviews conducted as part of the Survey made the project possible.

This report concludes a series of studies that make up the New Zealand Gaming Survey, a substantial body of gambling research commissioned by the Department of Internal Affairs. The full suite of seven reports from the Survey comprises:

- A critical review of international literature on gambling participation and problem gambling prevalence
- Results from fresh interviews with people who participated in Phase 2 of a previous national survey in 1991/1992
- Results in two reports of the 1999 two-phase national prevalence study
- A survey in two reports of the gambling behaviour of recently incarcerated prisoners
- A synthesis of all aspects of the research project.

In addition, the Department published a supplementary report bringing together in one volume three years of Problem Gambling Committee data on problem gambling counselling in New Zealand.

This is a very significant body of work that will assist Government in making informed choices in relation to its policy on gambling and responses to problem gambling in New Zealand.

Peter Hughes  
Secretary for Internal Affairs

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# 1. INTRODUCTION

## The Purpose of this Report

This report provides a selective overview of major findings from the New Zealand Gaming Survey (NZGS) research programme. Additionally, it incorporates some findings from other New Zealand research on gambling participation and problem gambling and brings this total body of information together in a synthesis focussed on answering the question: "What do we know about gambling and problem gambling in New Zealand?" Addressing this question also highlights some of the things we do not know.

During the past two years, national surveys of gambling and problem gambling have been completed in a small number of countries additional to New Zealand. Some of these studies are briefly considered and provide a wider context within which the New Zealand situation is examined.

The present report, Volume Seven of the NZGS, does not provide a comprehensive summary of the content of other volumes in the series. Apart from Volume One, which is a critical review of previous New Zealand and international research on gambling participation and problem gambling, Volumes Two to Six contain executive summaries that serve this purpose. Rather, the present volume picks out and discusses themes and findings that consistently emerge in these reports as well as from an earlier 1991 National Survey (1991NS) and other relevant recent studies. It also considers some of the unexpected and perhaps controversial findings of the NZGS and critiques of these and some other aspects of the research programme.

## The New Zealand Gaming Survey

The NZGS was commissioned by the Department of Internal Affairs (DIA). The Department administers New Zealand's three pieces of gaming legislation and services the Lottery Grants Board, which distributes the profits from the Lotteries Commission to the community. Most of the funding for the NZGS derives from the undistributed profits of the Lotteries Commission (applied to the project at the direction of the Minister of Internal Affairs). Some funding also comes from the Problem Gambling Committee (PGC), an organisation with representation from all major sectors of the gaming industry and problem gambling treatment providers. Notwithstanding the sources of funding, the project director's contract is with the Crown through the DIA and neither the Department nor any other organisation is empowered to control the research or to exercise editorial control over the publication of the research findings.

The terms of reference for the NZGS were developed by the DIA in consultation with a wide variety of statutory, industry and national voluntary sector organisations. The intent of the research is to inform government policy on gaming and responses to problem gambling and contribute to local and international scientific knowledge concerning aspects of gambling and problem gambling. It is also expected to provide information that has relevance to a variety of other stakeholder and end-user organisations with an interest in gambling and/or problem gambling.

The project director is Professor Max Abbott. He and Dr Rachel Volberg are the principal investigators, responsible for the overall design and execution of the research programme. These investigators are part of a larger research consortium that undertook the NZGS. Other members of the consortium include Statistics New Zealand (SNZ), the National Research Bureau (NRB) and Taylor Baines and Associates. Other staff members from Professor Abbott's Faculty of Health Studies at Auckland University of Technology and Dr Volberg's company, Gemini Research, were also involved in aspects of the NZGS.

Apart from the present report, the major components of the NZGS include:

Literature Review (Abbott & Volberg, 1999)  
Longitudinal Survey (Abbott, Williams & Volberg, 1999)  
National Prevalence Survey: Phase One (Abbott & Volberg, 2000)  
Women's Prison Study (Abbott & McKenna, 2000)  
Men's Prison Study (Abbott, McKenna & Giles, 2000)  
National Prevalence Study: Phase Two (Abbott, 2001).

As mentioned, while Volume Seven of the NZGS provides an overview of major findings from the reports based on each of these components of the overall research programme, it is skeletal, selective, and does not substitute for the reports that it draws upon. It is broader in focus and tends to present information in black and white when, from a reading of the original reports, it is evident that shades of grey are usually more appropriate. In contrast to the other reports, it has been prepared for a wider readership and an effort has been made to restrict the use of technical terms. Formal referencing is also kept to a minimum.

## **The 1991 National Survey and its Relationship to the NZGS**

As mentioned, this report refers to and makes some comparisons with findings from an earlier National Survey (1991NS) that was also undertaken by Abbott and Volberg and commissioned by the DIA (Abbott & Volberg, 1991; 1992; 1996; Volberg & Abbott, 1994). This earlier research involved a national prevalence survey and a second phase that involved more in-depth interviews with problem gamblers and regular non-problem gamblers selected from the national survey.

The first phase of the 1991NS also provided a baseline intended to enable changes in gambling participation and problem gambling to be assessed when the 1999 NPS was completed. In addition, the NZGS Longitudinal Survey involved re-interviewing 1991NS Phase Two participants seven years after their initial interviews to examine ways in which problem gamblers and regular gamblers without problems changed their gambling involvement and other aspects of their lives over time. These components of the New Zealand research are unique internationally in that they constitute the first national replication survey and the first longitudinal study of gambling and problem gambling in a general population sample.

The NZGS also includes the first study of gambling among women prisoners to use a validated measure of problem gambling and the only multi-site study of male prisoners' gambling and problem gambling.

## **The Department of Internal Affairs (DIA) Expenditure Data and National Surveys**

Other major sources of information drawn on in this report include DIA annual accounts of national expenditure on major forms of legal gambling available in New Zealand and DIA national surveys of gambling participation and attitudes towards gambling. These surveys have been conducted every five years since 1985 (Wether, 1987; Christoffel, 1992; Reid & Searle, 1996; Department of Internal Affairs, in press). They differ from the national surveys conducted by Abbott and Volberg in 1991 and 1999-2000 in that they included a younger age group (15 to 18 years), employed smaller samples, used face-to-face rather than mixed mode (telephone and face-to-face) interviewing and did not assess problem gambling. A strength of the DIA surveys is that they used similar procedures on four separate occasions, allowing changes over time to be assessed. A weakness is that the relatively small sample size, while adequate for examining trends among adults generally, does not allow a fine-grained examination of differences between sectors of the adult population.

## **The Context of the NZGS and this Report**

The NZGS has been conducted at the end of a decade of liberalisation and considerable expansion of gambling industries and gambling expenditure in New Zealand. While the introduction of Lotto (a national lottery) and other lottery products initially led this expansion, liberalisation of access to gaming machines and the establishment of casinos in large population centres played the major role. Many other countries throughout the world have also experienced rapid growth in gambling availability during the past ten to fifteen years. During this time, in New Zealand and elsewhere, there have been concerns expressed about the negative impacts of gambling and debate about the relative benefits and costs of this expansion.

Growing public and governmental concern regarding problem gambling and other aspects of gambling have, in recent years, resulted in the commissioning of research to quantify the extent of gambling and problem gambling. This has included national surveys in the United States, Australia, Sweden and New Zealand. New Zealand, Australia, the United States and some other countries have also undertaken or recently commenced national reviews of gambling policy. In some jurisdictions restrictions have been placed on the further expansion of particular forms of gambling. In New Zealand, for example, there is currently a moratorium on the establishment of additional casinos. Other jurisdictions have gone further and reduced the availability of some types of gambling, most notably gaming machines.

While concerns about real and perceived adverse impacts and costs associated with the expansion of gambling have increased in New Zealand and elsewhere, the large majority of adults in many countries gamble at least occasionally and attitudes towards gambling are generally more liberal and accepting than they were previously. Government policy has supported the expansion of some forms of gambling, for example casinos, primarily as a means of generating economic development and employment. Gambling on track and sporting events is also regarded as providing a contribution to the racing industry that generates employment and export revenue. The other major forms of legal gambling, namely lotteries and non-casino gaming machines, in addition to generating employment, contribute substantial sums to voluntary sector community and welfare

organisations, research, and statutory bodies with responsibilities for the arts, conservation and heritage, and sports and recreation. Considerable revenue from gambling by way of levies and taxation is also transferred to the consolidated fund to support the financing of governmental activities.

During recent years there has been increasing polarisation of opinion concerning the relative costs and benefits of gambling to society. While the NZGS findings are relevant to this debate, the research programme's terms of reference do not include a formal analysis of the wider economic benefits and costs of gambling in New Zealand. This remains an important area for future investigation.

The present report is published at a time when the country's gaming legislation is undergoing formal review. It has been prepared with this review in mind and provides information that will inform discussion and debate that constitute an important aspect of the review process. Probably more is known about gambling participation and problem gambling within New Zealand than in any other country. However it is evident from this report, and reports on the separate components of the NZGS, that some key questions remain unanswered and much of what is known requires qualification and further investigation.

## 2. GAMBLING AND THE GAMBLING INDUSTRIES

### Gambling Defined

Gambling or gaming, terms that are used interchangeably in this and other NZGS reports, refer to a variety of activities that have in common the risking of something of value in exchange for something of greater value. These activities are generally presented or viewed as recreation or entertainment, are widely regarded as forms of gambling within the community and/or are defined as such for regulatory or taxation purposes.

### Major Forms of Gambling

Gambling includes a diversity of activities that are undertaken in varied settings, appeal to different sorts of people and are perceived in various ways by people who take part or who observe others participating. Gambling forms have different origins and have been available in New Zealand for varying lengths of time. Major categories include:

- Lotteries including Lotto and instant (scratch) lotteries
- Betting (wagering) on the outcome of events such as horse and dog races and sporting contests
- Gaming machines
- Casinos, which include a variety of gaming activities including table games and gaming machines.

Each of these major categories is run by different sectors of the gaming industry under a variety of legislative, regulatory and taxation regimes. In addition, there are many other forms of gambling available in New Zealand, for example raffles, card games and housie (bingo). In recent years, there has also been rapid growth in the number of overseas-based Internet gambling sites that can be accessed through home and work-based computers. Some of these other types of gambling have a wide following whereas others appeal to particular groups within the community.

While traditionally distinct in a variety of ways, including their organisation, differentiation between major gambling forms is starting to blur and break down in New Zealand and other parts of the world. These changes have implications for the structure of the gaming industry, government and the wider community.

### Classification of Gambling Activities

People with a scientific interest in gambling and clinicians who work with problem gamblers have developed a variety of definitions and frameworks to classify and assist in their understanding of gambling and problem gambling. One framework concerns event frequency. Some forms, for example gaming machines, involve rapid cycles of stake, play and determination of outcomes. These forms are referred to as continuous types. Others, such as lotteries with draws some days or weeks apart, are much slower and are referred to as non-continuous types.

Gambling forms have also been differentiated on the basis of the degree of skill and luck involved in the determination of outcomes. Many forms of gambling are governed entirely by the laws of probability or luck. Housie (bingo), lotteries, gaming machines and some casino games such as roulette are in this category. The outcomes of other activities that people bet on, for example chess or dart games, may involve a large degree of skill. More common are forms that, while predominantly governed by chance, involve a small to modest element of skill. Card games such as poker, blackjack and baccarat are in this category. Betting on horse and dog races or on the outcomes of sporting events provide further examples. While gambling forms can be differentiated objectively according to the amount of skill involved, the 'skill-luck' distinction is complicated by the fact that many gamblers believe that they can influence the outcomes of events, even when these events are driven entirely by chance.

Both continuous forms of gambling and forms that involve an element of skill (real and/or perceived) have been implicated in the development of problem gambling. Gaming machines and betting on horse and dog races are particularly important in this regard in New Zealand and Australia.

Gaming machines involve very rapid cycles of play and, for many players, an element of perceived skill. In addition, 'wins' occur in an irregular and unpredictable manner. Behavioural psychologists refer to this as an intermittent schedule of reinforcement or rewards. The particular types of intermittent reward schedule programmed into gaming machines have been shown to be highly resistant to 'extinction' and to produce 'superstitious behaviours'. 'Extinction' refers to the speed at which responding stops when rewards are no longer forthcoming. In other words, the schedules used in gaming machines are designed to encourage sustained participation. 'Superstitious behaviours' refer to activities that are unrelated to the activity that actually produces the reward. This includes ritualistic actions as well as irrational beliefs, for example that a particular object will bring luck or that a given machine is more likely to pay out than others. The belief that players can influence outcomes governed entirely or predominantly by chance may also be regarded as a form of superstitious behaviour.

While track betting is not as close to the continuous end of the continuous-non-continuous continuum as gaming machines are, for many participants this form of gambling may involve a degree of actual skill, as well as perceived skill. The outcomes are also on an intermittent schedule, albeit that they are delivered less rapidly than is the case with gaming machines.

Non-continuous forms of gambling, for example Lotto that is drawn only once a week, generally have little or no direct association with problem gambling.

## **Origins**

Although there is no record of gambling as it is discussed in this report in pre-European contact Māori society, gambling has been a significant feature of New Zealand society and its economy since the early days of European colonisation. During the latter part of the Nineteenth Century, legislative and other measures were taken to attempt to restrict gambling. Additional restrictions, while variably enforced, were introduced during the early decades of the Twentieth Century. However, a state lottery (Art Union) was established in 1929 and from that time legislation gradually became more permissive.

The focus shifted from attempting to prohibit most forms of gambling to ensuring that they were fairly run and that resulting revenue went to charitable organisations.

In comparison to most other Western societies other than Australia, New Zealand has had a relatively tolerant approach to gambling. However, until the latter years of the 1980s, legal gambling was largely confined to on- and off-course betting on horse and dog races, the state lottery 'Golden Kiwi', and charitable raffles. Significant numbers of people also engaged in legal housie, 'casino' evenings, and prize competitions, and a variety of other forms of gambling, most of which were illegal. At this time, the large majority of gambling expenditure was on track (horse and dog race) betting. During the 1970s to mid-1980s, gambling expenditure on major forms of gambling remained fairly constant and constituted slightly less than one percent of total household expenditure.

## **The Recent Gambling Expansion**

Since 1987, gambling in New Zealand has been rapidly transformed, largely as a result of legalisation, liberalisation and technological developments.

A major feature of the recent transformation and expansion of gambling has been a proliferation of gambling forms. From 1987 to 1989, the following were introduced:

- Lotto (a national, weekly, televised lottery)
- Instant Kiwi (a form of instant, scratch lottery)
- Gaming machines in hotels and clubs.

In the case of electronic gaming machines, while they were licensed to operate in hotels and clubs from 1988, large numbers were already operating illegally.

These late 1980s developments were associated with a doubling in per capita expenditure on gambling from 1987 to 1990. Expenditure refers to the net amount lost, or the amount bet (the turnover) minus the amount won.

Since 1990, additional forms were introduced including:

- Daily horse/dog racing broadcast on 'Track-side', a free to air national television channel, and combined with facilities for betting on-course and through TAB agencies, the telephone and the Internet
- Hotel/pub TABs
- Urban casinos in some major metropolitan areas and resort towns
- Daily Keno
- TeleBingo
- Lotto Strike
- Powerball
- Sports betting
- 0900 telephone 'competitions'
- Internet betting.

Apart from the introduction of new forms of gambling, a notable feature has been a steady increase in the number of gaming machines located outside casinos. In January 1991 there were approximately 6,000 licensed non-casino gaming machines. By June

2001 there were 19,000 non-casino gaming machines operating from approximately 2,100 different sites. Since they were first licensed, the number of machines per venue and the size of jackpots also increased.

In addition to new forms of gambling being introduced and existing forms increasing in number, gambling has changed in other ways. These changes include:

- More accepting attitudes on the part of the wider community towards gambling and more concern about problem gambling
- Increased accessibility to most forms of gambling and their spread to previously non-gambling settings, including settings more acceptable to women and some other social groups (some authorities refer to this as 'convenience' gambling)
- Many forms of gambling becoming more rapid in tempo
- Sectors of the gaming industry, most notably casinos, being operated by private enterprise and involving large corporations, including multinationals
- More active promotion of gambling and increased advertising
- Increased use of gambling as a marketing tool for a wide range of products.

## **Gambling Expenditure**

National gambling expenditure (total consumer losses) on major forms of legal gambling during 1984, 1991 and 1998 are shown in Figure 1. This figure shows increases in total gambling expenditure as well as total and relative expenditure for these major gambling forms.

1991 figures are provided because that was the time when the first national survey of gambling and problem gambling was undertaken (Abbott & Volberg, 1991; 1992; 1996; Volberg & Abbott, 1994). 1998 figures are given because they correspond to the twelve month period preceding the second national survey of gambling and problem gambling that was conducted in early 1999 (Abbott & Volberg, 2000).

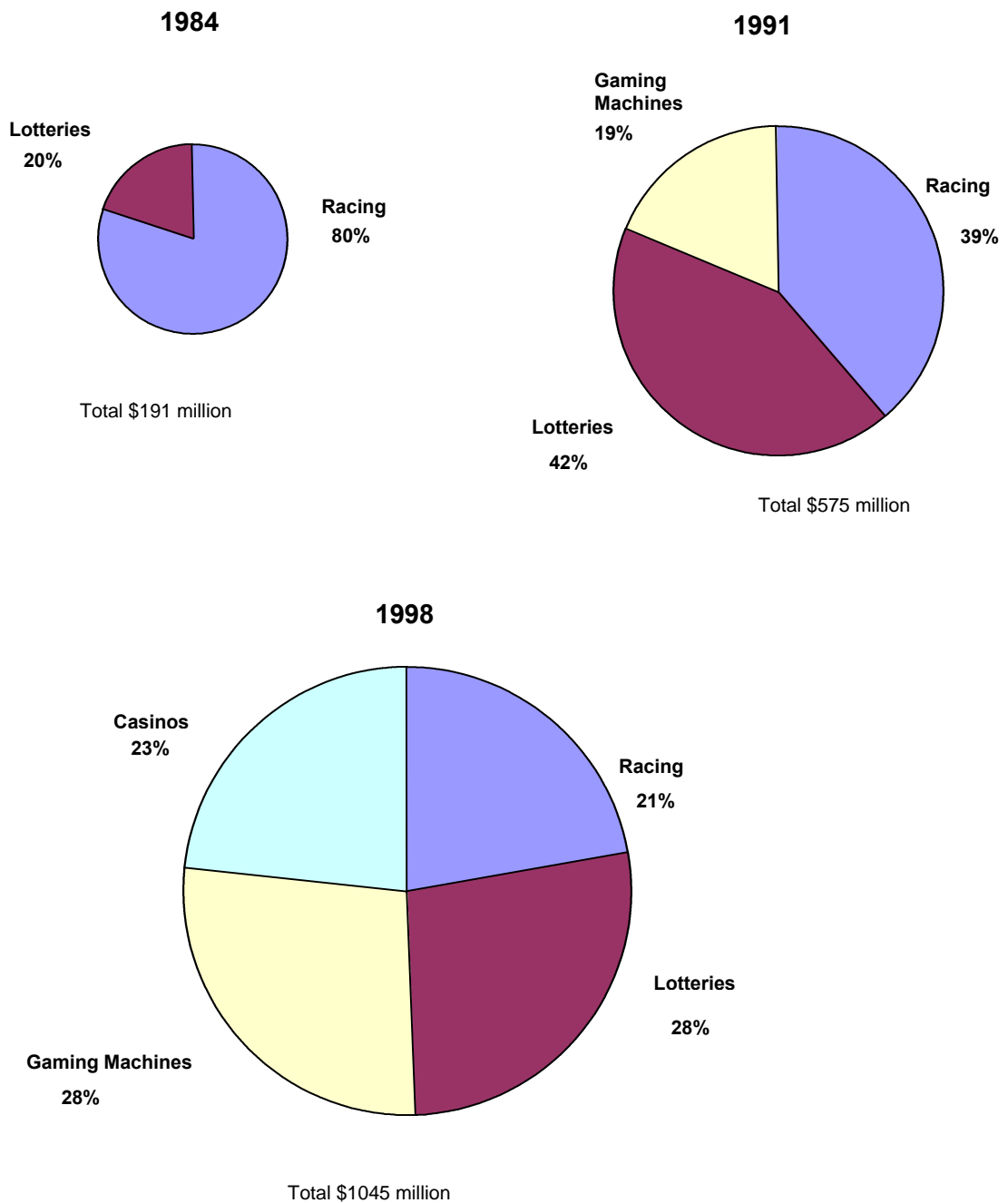
In 1984, total gambling expenditure on major forms of gambling was NZ\$191 million. Racing (track betting) dominated, accounting for 80 percent of the total. Lotteries accounted for the remaining 20 percent. During the preceding decade, inflation-adjusted gambling expenditure had not changed appreciably.

Seven years later, in 1991, total expenditure had increased three-fold to NZ\$575 million. Most of this increase took place during the preceding three years. In contrast to 1984, lotteries dominated, accounting for 42 percent of the total. Racing came a close second, with 39 percent of the total being spent on this form. Apart from the absolute and relative increase in lotteries expenditure, the other most notable change was the presence of non-casino gaming machines. This form of gambling accounted for 19 percent of the total in that year.

In 1998, gambling expenditure totalled NZ\$1,045 million, approximately double what it was seven years earlier. Non-casino gaming machines and lotteries ranked first equal, each accounting for 28 percent of total expenditure, followed by casinos (23%) and track and sports betting (21%).

The most recent figures (2000) show a further increase in total expenditure to NZ\$1,297 million. Non-casino gaming machines have increased their share to 35 percent. Casinos rank second (26%), ahead of lotteries (21%) and track and sports betting (18%).

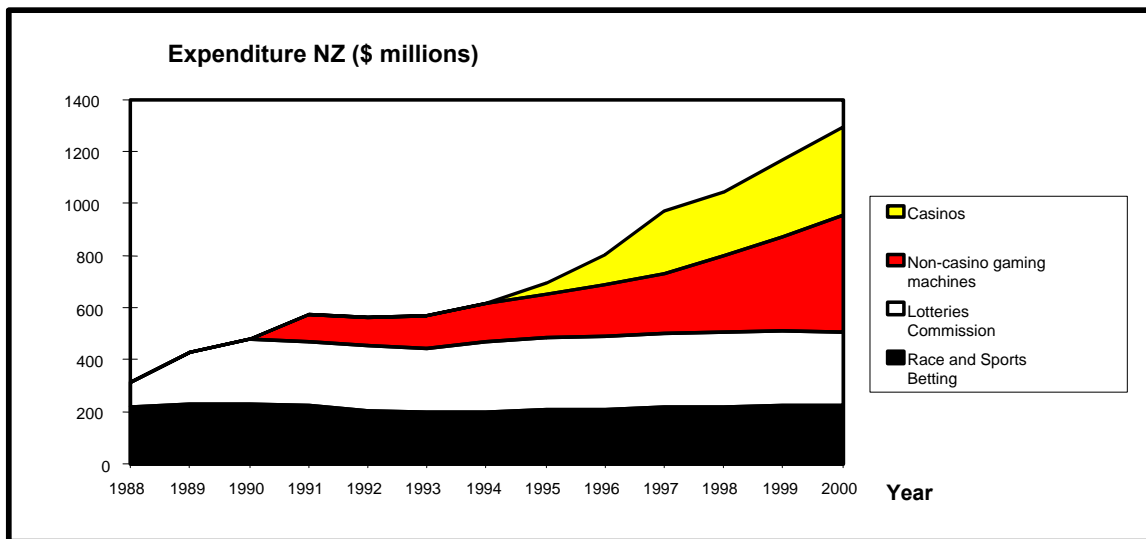
**Figure 1: Total Gambling Expenditure and Relative Expenditure on Major Forms of Gambling - 1984, 1991 and 1998**



Note: Prepared from information provided by the Department of Internal Affairs

More detailed information on national gambling expenditure on major forms of gambling is provided in Figure 2. The period from 1988 to 2000 is covered. No adjustment has been made for inflation in Figures 1 and 2. When inflation and increases in the population are taken into account, real per capita gambling expenditure increased by an average of 8.5 percent per annum from 1988 to 2000. 1988 is taken as the baseline year because this was the year when non-casino gaming machines were first licensed and gambling expenditure began to increase steadily following many years of stability.

**Figure 2: Expenditure on Major Forms of Gambling from 1988 to 2000<sup>1</sup>**



1. Figure provided by DIA

It is evident that the early (late 1980s) growth in gambling expenditure was on lotteries. Since 1990 gaming machines and, more recently, casinos have played the major role. While lotteries and track betting have lost their dominance since the introduction of gaming machines and casinos, expenditure on both categories has been fairly stable during the past ten years.

## **3. GAMBLING PARTICIPATION**

### **Introduction**

Official gambling expenditure provides information about how much money is spent on major forms of gambling and allows average adult expenditure to be determined. It also gives an indication of New Zealanders' changing level of involvement in gambling. However, official expenditure data do not tell us how much money particular individuals spend, either in total or on particular forms of gambling. This means that we do not know what proportion of adults spend large or small sums or whether there is variation in expenditure across different social groups. Official expenditure data also exclude minor forms of gambling. Information on these topics can be obtained only from social surveys that, additionally, may provide a great deal of other information about gambling participation, expenditure and attitudes towards gambling.

### **How often do people gamble?**

#### **Reported Lifetime Participation**

The National Prevalence Survey (NPS) estimated that, in 1999, 94 percent of New Zealanders participated in at least one type of gambling activity at some time during their lives. A similar level of lifetime participation was found in an earlier 1991 national survey as well as in recent surveys in Australia, Canada and Sweden.

#### **Reported Current Gambling Participation**

The NPS estimated that 86 percent of adults had gambled at least once during the past six months. This is a high rate by international standards but appears to be a little lower than the estimate from the 1991 national survey of gambling and problem gambling (90%).

As mentioned, the Department of Internal Affairs (DIA) has conducted national surveys of gambling and attitudes towards gambling every five years since 1985. In 1985 it was estimated that 85 percent of the adult population took part at least once in at least one form of gambling during the past 12 months. In both the 1990 and 1995 surveys the estimate was 90 percent and, in 2000, 87 percent.

The findings from the six surveys referred to in the preceding paragraphs indicate that recent (past 6 and 12 months) participation rates have remained relatively stable during the past 15 years. However, they also suggest that there might have been a slight increase from 1985 to 1990, when gambling expenditure increased particularly rapidly, followed by a slight decrease since 1995.

Although recent participation by adults in at least one form of gambling has remained fairly stable or decreased slightly in recent years, the proportion reporting participation in multiple forms of gambling has increased. In 1985 15 percent of adults were estimated to have participated at least once during the past 12 months in four or more gambling activities. This increased markedly to 40 percent in 1990 and appears to have changed little since (41% in 1995; 37% in 2000). However, the proportion of people who report

taking part at least once in seven or more activities has continued to rise from one percent in 1985 to ten percent in 2000.

## Reported Regular Gambling Participation

In 1999, it was estimated that 41 percent of adults gambled on a weekly basis. This is somewhat lower than was found in 1991 (48%). However, apart from Australia and Sweden, which appear to have similar rates, it is higher than rates generally obtained from surveys conducted in other countries.

## How often do people take part in different forms of gambling?

The 1999 NPS found that:

Lifetime participation is highest for Lotto (86%), followed by other lotteries or raffles (77%), Instant Kiwi (61%), betting on horse or dog races (48%), gaming machines outside casinos (37%), casino gaming machines (36%), money bets with friends or work-mates (34%) and TeleBingo (26%). Rates were less than 25 percent for other types of gambling.

Past six months participation is also highest for Lotto (73%), other lotteries or raffles (48%) and Instant Kiwi (36%). Past six months rates were less than 25 percent for other types. The 2000 DIA survey obtained a similar rank order for past 12 months participation in gambling activities, although the estimates were somewhat higher. This was expected given the longer time period of 12 rather than six months.

Weekly participation rates are again highest for Lotto (35%). Most people who gamble weekly or more often confine their regular gambling to this form. Most other types of gambling are rarely participated in this frequently. TeleBingo and Instant Kiwi (both 6%) come next in ranking after Lotto, followed by other lotteries and raffles (3%), betting on horse and dog races (3%) and non-casino gaming machines (2%). Weekly rates for other forms are less than two percent.

More detailed information on frequency of participation in particular forms of gambling is provided in Table 1.

**Table 1: Participation and Frequency of Gambling by New Zealand Adults in 1999**

Gaming activity	Frequency of Participation		
	Ever participated	Participated in past six months	Participate once a week or more
Lotto	86%	73%	35%
Instant Kiwi	61%	36%	6%
Daily Keno	9%	3%	1%
TeleBingo	26%	17%	6%
Other lotteries or raffles	77%	48%	3%
0900 telephone competitions	8%	3%	0%

Internet - horse or dog races	0%	0%	0%
Internet - other sports betting	0%	0%	0%
Internet - lottery tickets	0%	0%	0%
Internet - casino games	0%	0%	0%
Other types of Internet gambling	0%	0%	0%
Gaming machines at a casino	36%	11%	0%
Other games at casinos	16%	5%	0%
Gaming machines not at casinos	37%	14%	2%
Betting on horse or dog races	48%	18%	3%
Other sports betting	10%	5%	1%
Dice games	4%	0%	0%
Card games	15%	3%	0%
Housie	17%	3%	1%
Money bets with friends or workmates	34%	17%	1%
Other gambling activity	4%	1%	0%
Total, any one or more forms	94%	86%	41%

## How do the 1999 participation estimates compare with earlier estimates?

People who reported gambling weekly or more often were separated into one of two categories, namely regular continuous gamblers and regular non-continuous gamblers. Non-continuous gamblers gambled only on non-continuous forms, predominantly Lotto, on a weekly basis. Some also participated less often in continuous forms. Continuous gamblers gambled on continuous forms on a weekly basis. However, many also took part this often in non-continuous forms and most did so less often.

In 1999, it was estimated that 30 percent of adults were regular non-continuous gamblers and 11 percent were regular continuous gamblers. In this respect New Zealand appears to differ from Australia in that while a similar percentage in both countries are regular gamblers, in Australia, a half of the regular gamblers participate in continuous forms. While 30 percent of adults were also estimated to be regular non-continuous gamblers in the 1991 national survey, there were more regular continuous gamblers at that time. This information is included in Table 2. From the table, there appear to have been small or no changes in the proportions that never gamble, rarely gamble, occasionally gamble and gamble regularly on non-continuous forms. In contrast, the estimate for regular continuous gambling participation has dropped from 18 to 11 percent.

**Table 2: Gambling Participation: 1991 and 1999 National Survey Results**

Gambling Pattern	1991	1999
Non-gamblers	5%	6%
Infrequent Gamblers	6%	8%
Past 6 Months Gamblers	41%	46%
Regular Non-continuous Gamblers	30%	30%
Regular Continuous Gamblers	18%	11%

From the 1991 and 1999 national surveys, four DIA surveys and 1998 Values Study it is evident that, during the last ten years, past six and 12 month participation has been fairly stable for the two most popular forms of gambling, namely Lotto and other lotteries and raffles (see Table 3). Taking money bets with friends, in 2000, was also similar to what it was in 1990. Instant Kiwi, other instant lotteries, Daily Keno and housie participation, however, has declined. Involvement in non-casino gaming machines, track betting and playing card games for money have also declined somewhat. More recently introduced forms of gambling including TeleBingo, casino gaming machines and table games and sports betting have attracted small to moderate proportions of participants. It is too soon to determine whether participation in these forms has stabilised, is still rising or has started to decline.

**Table 3: - Gaming participation, Past Six or 12 months: 1985, 1990, 1991, 1995, 1998, 1999 and 2000<sup>a</sup>**

Response option	1985 %	1990 %	1991 <sup>1</sup> %	1995 %	1998 <sup>2</sup> %	1999 <sup>3</sup> %	2000 %
Bought a Lotto ticket	3 <sup>4</sup>	78	78	80	78	73	75
Bought ticket in N.Z. raffle/lottery	71	62	57	67	n/a	48	67
Bought an Instant Kiwi/Scratch ticket	n/a	66	51	58	49	36	48
Made bets with friends	19	23	16	30	n/a	17	24
Bought a Telebingo ticket	n/a	n/a	n/a	n/a	27	17	20
Played gaming machine (not at a casino)	n/a	28	16	24	26	14	18
Bet money on a horse or dog race	25	23	15	23	20	18	17
Casino	n/a	n/a	n/a	5	17	n/a	16
Played a gaming machine at a casino	n/a	n/a	n/a	n/a	n/a	11	14
Played a Table game etc at a casino	n/a	n/a	n/a	n/a	n/a	5	6
Attended a "casino" evening-fundraising	8	9	2	10	n/a	n/a	10
Bought ticket overseas raffle/lottery	n/a	n/a	n/a	n/a	n/a	n/a	10
Bet money on sporting event at TAB etc	n/a	n/a	n/a	1 <sup>5</sup>	8	5	8
Bought a Daily Keno ticket	n/a	n/a	n/a	11 <sup>6</sup>	5	3	6
Played card games for money	10	12	5	9	n/a	3	5
Played housie for money	8	5	3	6	n/a	3	4
Played 0900 games	n/a	n/a	n/a	4	6	3	3
Played dice games	3	4	1	3	n/a	<1	2
None - Haven't taken part in any activity	15	10	10	10	12	14	13
Number of respondents	1,500	1,200	4,053	1,200	1,201	6,452	1,500

*Multiple choice*

<sup>1</sup> Records activity only in last 6 months, from 1991 Abbott survey (telephone survey)

<sup>2</sup> Records gaming activity in the last 12 months, from 1998 Values Study (postal survey)

<sup>3</sup> Records activity only in last 6 months, from 1999 Abbott survey (telephone survey)

<sup>4</sup> Lotto was unavailable in New Zealand in 1985, so these tickets would have been bought overseas

<sup>5</sup> Sports betting was not available in NZ, this was asked about bets placed with an Australian betting agency

<sup>6</sup> Daily Keno had been operating for about 3 months at the time of this survey

*a Table provided by DIA*

The seven national surveys examined gambling participation in different samples of adults at different points in time. They also used different modes, namely telephone and face-to-face interviews and mailed questionnaires. Given these differences, there is considerable consistency in the findings. The findings from respondents in each survey were then generalised to the total adult population and change over time was inferred by comparing estimates from the various surveys. The 1991NS and the more recent NZGS also examined this issue by asking people about gambling involvement at earlier periods in their lives and whether or not they personally considered that their involvement had increased or decreased. These accounts were retrospective. In the NZGS longitudinal study, another perspective was added by comparing participants' actual accounts of their current gambling involvement in 1991 and 1998. These prospective accounts are more likely to be accurate than those based on the recall of events distant in time. However, only people who were problem gamblers or regular gamblers who did not have problems

in 1991 were included in this study. It did not include people who did not gamble or gambled less than once a week at the time they were recruited to the study.

Based on retrospective accounts, in Phase Two of the 1991NS it was found that people who were regular non-problem gamblers in 1991 reported that leaving school was the life transition most often associated with increased gambling involvement. Following marriage or the establishment of a de facto relationship, people reporting decreased participation outnumbered those who reported increases by two-to-one. The arrival of children had a considerable impact on gambling involvement with reports of decreased involvement outnumbering increases by more than 16 to one. A third of regular non-problem gamblers reported decreased involvement at this time. A third also reported decreased involvement following the cessation of paid employment (retirement or unemployment), although the ratio of reductions of increases was somewhat less (approximately 7 to 1).

When 1991NS Phase Two participants were re-interviewed seven years later, it was found that just under a quarter of the lifetime non-problem gamblers who gambled weekly or more often on continuous forms of gambling in 1991 continued to do so. Nearly a half gambled this often on non-continuous forms, predominantly Lotto, and just under a quarter either did not currently gamble or gambled infrequently. With respect to continuous forms of gambling, the most notable reductions were evident for Instant Kiwi and non-casino gaming machine participation. There was little change in track betting involvement.

In contrast to regular continuous gamblers, participants who were lifetime non-problem regular non-continuous gamblers in 1991 showed much greater consistency over time. Two-thirds remained in this category seven years later. Over a fifth did not gamble or gambled infrequently and a small number (6%) gambled regularly on continuous forms. Reductions in Instant Kiwi and non-casino gaming machine participation were also evident in this group.

In addition to comparing reported current gambling involvement in 1991 and 1998, in 1998 participants were asked whether or not they personally considered that their gambling had increased, decreased or stayed much the same since 1991. Consistent with the prospective findings, 1991 regular non-continuous gamblers more often than the 1991 regular continuous gamblers considered that their gambling involvement had stayed much the same and, in the case of regular continuous gamblers, more reported decreased than increased involvement.

In Phase Two of the 1999 NPS, participants were also asked if they personally considered that their gambling behaviour had increased, decreased or stayed much the same. The timeframe in this instance was the past five years. In contrast to the 1991 survey, in 1999 people who gambled less than once a week were included and the findings could be generalised to all adults who had ever gambled.

In 1999 just over half of adults who had ever gambled considered that their overall gambling participation was similar to what it was five years ago. Over a quarter indicated that their involvement had reduced and just under a fifth indicated that it had increased.

Most people in the 1999 survey who indicated that they gambled more often than once a week five years ago reported that their participation had decreased. In contrast, those who gambled between once a month to once a week much less often reported changed involvement and increases and decreases almost balanced. Like very frequent gamblers, people who gambled less than once a month five years ago also often changed their level of involvement. For this group decreases outnumbered increases by about two-to-one. **From these findings it appears that both high and low frequency gamblers are prone to change their level of gambling involvement over time. For both groups, but especially high frequency gamblers, the net effect is decreased involvement.**

Gambling preferences five years ago were also examined in relation to self-assessed changes in overall gambling participation. **People who said they preferred track betting five years ago showed greater stability over time than people with other preferences.** Along with people who said they favoured other lotteries and raffles five years ago, this was the only gambling preference group that reported increased involvement more often than decreased involvement. **People who preferred Instant Kiwi or non-casino gaming machines five years ago were the least stable of the preference groups and decreases greatly outnumbered increases.**

## **Do some groups gamble more than others?**

With respect to lifetime gambling participation, there is relatively little difference between sectors of the population. This is expected given that the large majority of adults have gambled at some time. However, differences are evident in the case of regular continuous gamblers and people who gamble rarely or never.

In 1999, proportionately more of the following were regular continuous gamblers:

- Males
- People aged 55-64 years
- Māori
- People without formal educational qualifications
- Employed people
- People in lower status occupations
- Roman Catholics
- Christchurch residents.

Those who had never gambled or who did not gamble in the past six months contained disproportionately more:

- Asians
- People born in countries other than New Zealand, Europe, Australia and North America
- People resident in New Zealand for less than four years
- Students
- Other Christians (i.e. Christians not in the major denominations)
- People of other religions (i.e. people of religions other than Christian).

Twenty-five percent or more of the people in the groups just listed said they had never gambled or gambled infrequently. People who were unemployed or not in the paid labour force also contained somewhat more people in this category.

## **Do some groups participate more in particular forms of gambling?**

This question has been answered with respect to frequent participation in the broad grouping of continuous gambling forms. Attention is now directed to the more popular specific gambling activities. With respect to past six months or more frequent participation:

### Lotto participants are:

- More likely to be employed and lack degree or higher qualifications
- Less likely to be aged 18-24 years, have lived in New Zealand for less than four years, be of a religion other than Christian or a Christian who does not belong to one of the major denominations

### Instant Kiwi participants are:

- More likely to be employed, female, aged under 45 years (with particularly high levels of participation on the part of people aged 18-24 years)
- Less likely to be a Pacific Islander, have lived in New Zealand for less than four years, of a religion other than Christian or a Christian who does not belong to one of the major denominations

### Track betters are:

- More likely to be employed, have no school or other qualifications, male, aged 25-34 years, Māori, Roman Catholics, live in Wellington or Christchurch
- Less likely to be aged 18-24 years, Asian, live in a household with an income of NZ\$40,001-NZ\$50,000, of a religion other than Christian or a Christian who does not belong to one of the major denominations

### TeleBingo participants are:

- More likely to be female, aged over 34 years, a Māori or Pacific Islander, lack a degree or higher qualification, married or living in a defacto relationship
- Less likely to be of a religion other than Christian or a Christian who does not belong to one of the major denominations, have lived in New Zealand for less than four years, have a household income over NZ\$50,000, live in Auckland or Christchurch

### Non-casino gaming machine participants are:

- More likely to be male, employed, lack a degree or higher qualification, a Māori, aged under 35 years, have never married
- Less likely to be of a religion other than Christian or a Christian who does not belong to one of the major denominations, an Auckland resident, live alone,

have a household income of NZ\$20,001-NZ\$30,000 or NZ\$50,001-NZ\$70,000

Casino gaming machine participants are:

- More likely to be employed, a Pacific Islander, live in Christchurch or Auckland, born outside Europe, Australia or North America, have a household income over NZ\$70,000
- Less likely to be a Christian who does not belong to one of the major denominations, live in a household of five or more people, have a household income of NZ\$30,000 or less

Other casino games participants are:

- More likely to be male, employed, aged 25-34 years, live in Christchurch or Auckland, born in Europe, Australia or North America
- Less likely to be a Christian who does not belong to one of the major denominations, have school qualifications only, have a household income of NZ\$30,000 or less.

## **Have there been changes over time with respect to group differences in gambling participation?**

This is a difficult question to answer with certainty because there is no earlier survey of comparable quality and scope to the 1999 NPS to allow direct comparison over time. The 1991 national survey did not examine group differences in as much detail as the 1999 NPS did. Although smaller DIA surveys conducted in 1985, 1990, 1995 and 2000 contain relevant information, they did not separate out Pacific Islanders (with the exception of the 2000 survey) and unemployed people and used somewhat different age categories. Their smaller sample size and a lack of information regarding response rates and other methodological details mean that there is uncertainty about the reliability of their findings.

Noting the cautionary comments just made, there do appear to be some differences between the findings of the 1991 and 1999 national surveys. Some of these differences are also present when the 1999 NPS and DIA survey findings are compared.

While participation differences between men and women are similar in 1991 and 1999 with respect to gambling forms available for over a decade, women have much higher levels of participation in TeleBingo, a form introduced since the 1991 survey. Although men continue to play non-casino gaming machines somewhat more than women do, there is no gender difference in casino gaming machine participation.

There also appears to have been a substantial reduction in participation levels on the part of unemployed people. This is most evident for Instant Kiwi, track betting and non-casino gaming machines. Pacific Islanders also appear to have lower levels of participation in Instant Kiwi and track betting.

As indicated previously, changes in gambling participation were also examined by asking survey participants whether or not they themselves considered that their overall

level of involvement had changed over time. Group differences in self-assessed gambling involvement during the past five years are examined in the 1999 NPS Phase Two report (Abbott, 2001). Considerable differences were found between some groups.

Just over a half of both men and women considered that their level of gambling participation had not changed during the past five years. However, whereas reported increases and decreases balanced for women, in the case of men decreases outnumbered increases three-to-one.

Younger adults reported less stability than older adults. In the case of older adults, self-assessed decreases only slightly outnumbered increases. In the case of younger adults, decreases outnumbered increases by more than two-to-one.

People who indicated that they started gambling during childhood or adolescence much more often reported decreased than increased participation during the past five years. Those who started as adults more often reported increases than decreases.

A much higher proportion of Māori relative to Europeans and people of other ethnicities reported that their level of gambling involvement had changed during the past five years. Of the Māori who changed their participation, somewhat more reported increases. In the case of Europeans, somewhat more reported decreases. Relatively few people of other ethnicities indicated changed participation, however, of the few that did, most mentioned decreased involvement.

## **Which types of gambling do people prefer?**

Gambling participation and expenditure provide an indication of preference. However, in the NZGS and other surveys, people have also been asked directly about their preferred (favourite) form of gambling.

In 1999, approximately three-quarters of the 94 percent of adults that reported ever having gambled indicated that they had a favourite or preferred form of gambling. In 1991, the same percentage said they had a preferred form.

Consistent with the participation findings, in 1999 Lotto was the most preferred form, favoured by 24 percent of adults. Of the remaining gambling activities, only track betting (10%), Instant Kiwi (6%) and TeleBingo (5%) were favoured by five percent or more of the adult population.

## **How stable are gambling preferences over time?**

1991NS participants were also asked what was their favourite form of gambling. At that time, Lotto again ranked first, favoured by 28 percent of adults, followed by track betting (12%), Instant Kiwi (7%) and gaming machines (5%). TeleBingo was not available in 1991. Comparison of the 1991 and 1999 preferences suggest that there has been little change in the popularity of Lotto, betting on horse or dog races and Instant Kiwi. While these three forms retained their relative rankings, all of them appear to be slightly less popular than previously. In 1991 there were no casinos in New Zealand and gaming machines were confined to hotels and clubs. In 1999, four percent of adults were estimated to favour non-casino gaming machines and another four percent to favour

casino gaming machines. This suggests that gaming machines may have increased somewhat in popularity.

Apart from considering changes over time within the adult population, some information concerning preference changes on the part of individuals is also available.

As mentioned earlier, 1991NS non-problem gamblers who gambled weekly or more often in continuous and non-continuous forms of gambling at that time were re-assessed seven years later. This assessment included asking them about their gambling preferences in 1998.

In 1991, although they gambled regularly on a continuous form or forms, half of the lifetime non-problem regular continuous gamblers said that Lotto was their favourite gambling activity, followed by Instant Kiwi (12%), track betting (9%) and non-casino gaming machines (9%). Seven years later, over two-thirds (68%) reported that they favoured Lotto, reduced numbers favoured Instant Kiwi or non-casino gaming machines (both 3%), the same number favoured track betting (9%) and 15 percent favoured casino gaming (table games and/or gaming machines).

In 1991, over three-quarters of non-problem regular non-continuous gamblers indicated that Lotto was their favourite form of gambling. Small numbers favoured Instant Kiwi or non-casino gaming machines (both 6%). In 1998, 63 percent preferred Lotto, three percent Instant Kiwi, six percent other lotteries or raffles, six percent track betting and nine percent casino gaming.

These prospective findings suggest that, for regular continuous gamblers, Lotto increased in popularity whereas two forms of continuous gambling, Instant Kiwi and non-casino gaming machines, became less popular. Track betting retained its relative popularity. In the case of regular non-continuous gamblers, while the majority continued to prefer Lotto, less did so than seven years earlier. In this group, none continued to favour non-casino gaming machines and a small number developed a preference for other lotteries or raffles or track betting. A moderate number in both groups, but especially in the continuous group, developed a preference for casino gaming.

## **How much do people report spending on gambling?**

Total monthly gambling expenditure was calculated for 1999 national survey participants who reported that they had gambled during the past six months. Based on this information, the estimated total annual expenditure for New Zealand adults during the previous 12 months was NZ\$1,162 million, similar to the official expenditure on major forms of gambling during 1998 (NZ \$1,045 million).

It is important to recognise that self-reports of gambling expenditure are strongly influenced by the way in which questions are phrased and are subject to a variety of forms of distortion. In addition, they typically under-state actual expenditure on some types of gambling, notably gaming machines and casino gambling. Lotteries expenditure, on the other hand, is over-stated relative to official accounts. Reported expenditure on horse and dog races more closely reflects actual expenditure.

Although there is substantial under- and over-reporting of expenditure on particular types of gambling, in the 1999 national survey these effects cancelled each other out in the total gambling expenditure figures. However, it is important to keep these differences in mind when considering particular forms of gambling.

In 1999, the average reported monthly expenditure of adults on all forms of gambling was NZ\$41. In 1991, the monthly average was NZ\$37. This suggests that there has been little or no difference in reported gambling expenditure from 1991 to 1999, a finding that appears to be inconsistent with overall increases in official expenditure. The 1995 DIA survey also reported similar expenditure to that of the 1990 DIA and 1991 national surveys. How can this be explained?

It will be recalled that gaming machine and casino gambling expenditure are considerably under-reported in surveys whereas lottery expenditure is over-reported and track expenditure is generally similar to official records. The most likely explanation for little or no change in reported expenditure is that most of the increase in actual expenditure is accounted for by gaming machines and casinos.

Most adults report spending small amounts on gambling activities. In 1999, just over half (53%) reported spending less than NZ\$20 per month. Twenty-four percent said they spent between NZ\$20 to NZ\$39 per month and 23 percent NZ\$40 or over.

While most people spend relatively small sums of money gambling, a substantial minority of gamblers spends very large amounts.

Regular continuous gamblers, who make up 11 percent of the adult population, report spending NZ\$152 per month on average. Seventy-one percent of these people indicate that they typically spend over NZ\$40 per month on gambling. Collectively, they represent a third of adults who report spending NZ\$40 per month or more. The group includes people who lose very large sums of money. Given that most of these people gamble on forms of gambling for which expenditure is under-reported, these figures are likely to be highly conservative.

The 30 percent of adults who are regular non-continuous gamblers report average expenditure of NZ\$42 per month. In contrast to regular continuous gamblers, there is little variability in gambling expenditure within this group. As these people gamble predominantly on Lotto and other non-continuous forms, their expenditure is over-reported.

The 46 percent of the adult population who are infrequent gamblers (have gambled in the past 6 months but not in the past week) report average expenditure of NZ\$15 per month. Like regular non-continuous gamblers, people in this group show little variation in their gambling expenditure.

## **What types of gambling do people report spending most money on?**

From NPS self-reported expenditure, it was found that Lotto took the largest share (36%), followed by track betting (18%), non-casino gaming machines (7%), other lotteries and raffles (7%), Instant Kiwi (6%) and casino gaming machines (6%). No other

form accounted for more than five percent. As found in studies in other countries and already discussed, relative to official expenditure, reported expenditure on Lotto and other forms of lottery is over-stated whereas gaming machines and casino gaming are under-stated.

1999 proportions of reported expenditure are similar to those obtained in the 1991 national survey for Lotto, track betting, non-casino gaming machines and other lotteries and raffles. Instant Kiwi accounted for a larger proportion of the total in 1991, as did betting on card games.

There are very considerable differences in the sums of money that people report spending, on average, on particular types of gambling. In 1999, average reported typical monthly gambling expenditure for each of a variety of gambling activities were:

- Lotto NZ\$18
- Instant Kiwi NZ\$6
- Daily Keno NZ\$10
- TeleBingo NZ\$10
- Other lotteries or raffles NZ\$5
- Casino gaming machines NZ\$19
- Other casino games NZ\$28
- Non-casino gaming machines NZ\$17
- Betting on horse or dog races NZ\$36
- Other sports betting NZ\$18
- Dice games NZ\$12
- Card games NZ\$44
- Housie NZ\$28
- Money bets with friends or workmates NZ\$5.

From this list it is evident that card games and track betting have the highest reported average expenditure. These two forms of continuous gambling are also distinguished from other forms by displaying particularly wide variation in expenditure.

Internet betting is not included because very small numbers of people reported participating and the expenditure estimates calculated from the information that they provided are unlikely to be reliable.

## **Which groups spend the most money on gambling?**

Earlier, it was mentioned that regular continuous gamblers report spending substantially larger amounts of money on gambling than do other categories of gambler. In Phase One of the NPS, as indicated previously, the following groups contained proportionately more regular continuous gamblers:

- Males
- People aged 55 to 64 years
- Māori
- People without formal educational qualifications
- Employed people

- People with lower status occupations
- Roman Catholics
- Christchurch residents.

Most of these groups also reported spending an average of NZ\$50 or more per month on gambling activities. Additional groups spending this amount included people aged 45 to 54 years, Pacific Islanders, people born in countries other than New Zealand, Europe, Australia and North America, legislators, administrators and managers, people of non-Christian religions and people with household incomes of NZ\$70,001 or more. Pacific Islanders, people born in other countries other than New Zealand, Europe, Australia, and North America, and people of non-Christian religions are of interest because they also contain relatively large proportions of people who report never or rarely gambling. Given that their average expenditure is high, this means that they contain significant numbers who spend large and very large sums.

### **Why do people gamble and why do some people increase their gambling involvement?**

The simple answer to the first part of this question is that most people gamble because they enjoy it. The particular type of satisfaction derived from gambling and the reasons for it vary from one form of gambling to another. People also vary in their individual reasons for gambling. However, when asked explicitly why they gamble, the most frequently mentioned reason is to win money or the dream of winning. The next most often mentioned reasons given for gambling in New Zealand general population surveys, in descending order of frequency, include entertainment or fun, to support worthy causes, socialising and excitement/challenge.

In Phase Two of the 1991NS regular and problem gamblers were asked whether or not a variety of positive and negative characteristics and consequences of gambling applied to them. These questions were repeated in Phase Two of the 1999 NPS. In this instance, infrequent gamblers were also included and participant responses were statistically weighted so that the findings could be generalised to New Zealand adults who had ever gambled. In 1999, forty percent or more people reported that:

- Gambling has been a hobby or interest
- They have daydreamed about getting a big win
- Gambling has given them pleasure and fun
- They have gone gambling with family or friends
- When they were gambling they felt excited
- When they were gambling they felt relaxed.

Somewhat less mentioned that gambling provides a focus for conversation with family members, friends or work associates. A small percentage, mainly problem gamblers, said that gambling helped them to cope with negative emotional states.

From the foregoing it is evident that a combination of factors is involved in the enjoyment of gambling. Some relate to features of the specific form of gambling per se, whereas others are more related to associated factors such as the venue or setting or interaction with other people. How gambling can induce relaxation appears to have been little investigated. Apart from actual involvement and associated activities such as socialising

or drinking alcohol, the distraction that some forms of gambling provide and their capacity to induce states of dissociation in some gamblers may be important.

In the 1999 NPS, participants were asked what factors had resulted in them increasing their gambling participation at various times in the past. Reasons most often given for increased gambling included more money being available, more gambling options, and advertising.

The 1998 Longitudinal Survey, which it will be recalled involved repeat interviews with problem and regular non-problem gamblers who had previously been interviewed in 1991, asked people who reported increased gambling during the past seven years why their gambling had increased. The reason mentioned most frequently by both problem and non-problem gamblers was having an increased income or improved financial situation. A third of the problem gamblers but very few non-problem gamblers also mentioned that their gambling had increased as a consequence of there being more gambling opportunities and options available. Other reasons mentioned by more than a fifth of non-problem gamblers included 'something to do/a day out', the opening of a casino and the chance of winning.

## **Why don't people gamble and why do some people decrease their involvement?**

As indicated previously, the great majority of New Zealanders report that they have gambled at some time. Most adults indicate that they have gambled during the past six months and approximately 41 percent say that they do so at least once a week.

Some sociodemographic groups contain relatively more non-gamblers. For example, as mentioned earlier, in Phase One of the 1999 NPS a quarter or more of people in the following groups said they had not gambled during the preceding six months:

- Asians
- People born in countries other than New Zealand, Europe, Australia or North America
- Migrants resident less than four years
- Students
- Christians not in major denominations
- People of religions other than Christian.

The following groups reported average monthly gambling expenditure of less than NZ\$30 per month:

- People aged 18 to 24 years
- Ethnic groups other than Europeans, Māori, Pacific Islanders and Asians
- Migrants resident less than four years
- People with degrees or higher qualifications
- People outside the paid labour force (students, retirees, people at home looking after children)
- Professionals
- People with a household income of NZ\$20,000 or less.

Consideration of these groups suggests that culture, religion, education, occupational status and income play a significant role in some peoples' reasons for not gambling and spending less on gambling activities.

The Department of Internal Affairs national gambling surveys in 1990, 1995 and 2000 asked people why they did not participate in major forms of gambling during the past 12 months. The reason most often given across all forms of gambling was lack of interest. Next most often mentioned was that it was a waste of time and/or money. For most gambling forms, the third ranked reason given was moral or religious. Two other reasons given by at least some respondents for all forms included the chances of winning not being very good and the expense. Lack of access was also mentioned in some cases, particularly in relation to casinos.

Approximately half of 1998 Longitudinal Survey respondents who reported decreased gambling participation from 1991 to 1998 reported that this resulted from a lack of money. Similar percentages of problem and regular non-problem gamblers gave this reason. Just under a third of non-problem gamblers said the reason was a lack of interest. Significant numbers of problem and non-problem gamblers also mentioned a change in lifestyle or living situation. A further reason, mentioned by a quarter of problem gamblers but no non-problem gamblers, was that they had an increased awareness of negative effects of gambling or that they were now 'older and wiser'.

## **How do people get introduced to gambling?**

In Phase Two of the NPS, people most often reported that they were first introduced to gambling by family members. Friends, and much less frequently workmates, were also mentioned in this regard. There appear to be considerable differences across major sociodemographic groups. This requires further investigation.

## **What are the benefits of gambling?**

The benefits of gambling that receive most attention in gaming industry reports, formal economic and social impact assessments and the popular media, include job creation and increased income and expenditure associated both directly and indirectly with gambling, and the expansion of gambling. A variety of methods to formally assess such contributions to regional and national economies have been developed. These methods also take account of taxation generated by gambling and other revenue deployed to support voluntary sector and other activities that are generally regarded as being beneficial to society. The results of such assessments vary quite widely, depending on the assumptions underlying them and the particular methodology used. They are also strongly influenced by the extent to which it is considered that benefits are offset by the inclusion of the social costs of gambling.

To date, no national economy-wide assessment of gambling has been published in New Zealand. However, a number of such analyses were undertaken for the recent national inquiry into Australia's gaming industries. The Productivity Commission, which undertook this inquiry, concluded that when the focus was on the country as a whole rather than on specific regions:

the modelling indicates that changes in the size of the industry would have little impact on Australia's GDP, consumption levels or labour market outcomes over the long term (Productivity Commission, 1999, p.17).

The main reason for the conclusion that gains in employment and economic activity are minimal is that the diversion of consumer spending to gambling has a negative impact on other industries. The Productivity Commission maintained that had the money invested in gambling developments been spent on alternative ventures, similar employment and economic benefits would have resulted.

The Commission noted that there is a high level of uncertainty and imprecision associated with attempts to quantify the costs and benefits of gambling. For this reason, the Commission provided both low and high estimates for its cost-benefit analysis of the gambling industries' net contribution to society. These estimates ranged from a net loss of A\$1.2 billion to a net benefit of A\$4.3 billion. By far the largest contribution to the benefit side of the ledger resulted from the Commission's assessment of the financial value of the increased enjoyment that people obtained from the expansion of gambling in Australia.

## 4. PROBLEM GAMBLING

### What is problem gambling?

Although relatively few adult New Zealanders report that gambling has either a positive or negative effect on their overall quality of life, most people who gamble presumably do so because they obtain satisfaction from it. While they generally do not experience adverse consequences, a minority does. These negative effects vary in severity and duration and typically have a ripple effect, creating additional problems for other people and the wider community.

Like gambling, problem gambling has a lengthy pedigree and has been referred to in historical accounts and works of fiction. Although it has long been recognised that gambling involvement can lead to a range of personal, social and legal problems, it is only relatively recently that these problems have received significant attention from health professionals, researchers, governments and members of wider society. This increased attention to problem gambling has taken place during a period of rapid expansion in gambling availability and expenditure and has coincided with the development of services to assist people with problems. There are also indications from various parts of the world that gambling problems have become more widespread during this growth phase.

Serious problem gambling, referred to as pathological gambling, is included in the two major official classifications of mental disorders, the International Classification of Diseases (ICD) and the Diagnostic and Statistical Manual (DSM) of the American Psychiatric Association. Currently, the essential characteristics of pathological gambling are deemed to include:

- A continuous or periodic loss of control over gambling
- A progression, in gambling frequency and amounts wagered, in the preoccupation with gambling and in obtaining moneys with which to gamble, and
- Continuation of gambling involvement despite adverse consequences.

The full set of diagnostic criteria for pathological gambling outlined in the most recent edition of the DSM is provided in Figure 3.

While pathological gambling is defined as a discrete psychiatric disorder, its expression varies somewhat from one person to another and many people experience problems that fall short of the threshold required for a diagnosis of pathological gambling. In some cases these problems are serious for the person experiencing them and/or for others in their life. Consequently, many gambling researchers and clinicians regard problem gambling as a continuum, ranging from mild severity and short duration through to severe and chronic. The term problem gambling is often used to refer to this wide spectrum which includes pathological gambling. It is also used to differentiate problems of lesser severity from those that are classified as pathological gambling. In the field of alcohol studies, similar distinctions are made between alcohol problems and alcohol dependence.

### Figure 3: DSM-IV Diagnostic Criteria for Pathological Gambling

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- A. Persistent and recurrent maladaptive gambling behaviour as indicated by five (or more) of the following:
1. Is preoccupied with gambling (e.g. preoccupied with reliving past gambling experiences, handicapping or planning the next venture, or thinking of ways to get money with which to gamble)
  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 relieving a dysphoric mood (e.g. feelings of helplessness, guilt, anxiety, depression)
  6. After losing money gambling, often returns another day to get even ('chasing' one's losses)
  7. Lies to family members, therapists, or others to conceal the extent of involvement with gambling
  8. Has committed illegal acts such as forgery, fraud, theft or embezzlement in order to finance gambling
  9. Has jeopardised 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
- B. The gambling is not better accounted for by a manic episode.
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Although classified as a disorder of impulse control, like kleptomania or compulsive fire lighting, pathological gambling has parallels with alcohol and other drug dependencies. These conditions, along with major affective disorders and some other mental disorders, also quite often occur in conjunction with pathological gambling.

In addition to severe forms of problem gambling being recognised as a mental disorder, in recent years it has also been appreciated that the wide spectrum of gambling-related problems constitute a significant public health issue. This is because they are influenced by the society within which they occur and because they have a significant impact on wider society. These problems are expressed through impaired physical and mental health, suicide, disruption to family and interpersonal relationships, indebtedness, criminal offending and time out of paid employment.

During the past few years, attempts to assess the nation-wide impacts of problem gambling have been made in a number of countries through the conduct of national prevalence surveys. Apart from New Zealand, in which national surveys were undertaken in 1991 and 1999, surveys have recently been completed in Australia, the United States, Sweden and the United Kingdom. Prevalence surveys are primarily concerned with estimating the extent of gambling problems in the general adult population.

As mentioned, in some jurisdictions, the assessment of adverse consequences of gambling has been taken further in analyses that endeavour to assign a monetary value to them and compare these costs with the purported financial benefits of gambling. Information from problem gambling prevalence surveys is required to conduct cost-benefit analyses of gambling. However, robust analyses of this type require a great deal of additional information about the many different consequences of gambling. To date, none have had a solid foundation of relevant information and all have made assumptions that may be unfounded. In recognition of this, most have provided a range of estimates. As indicated in the previous section, these estimates vary so widely that, at best, they provide a crude approximation of the likely costs (and benefits) of gambling to regional or national economies.

Costs related to problem gambling have dominated the deficit side of the equation in attempts to model the net financial benefit or cost of gambling. For example, the recent

Australian Productivity Commission analysis provided estimates of the cost of problem gambling that ranged from A\$1.8 billion to A\$5.6 billion. This was based on costs related to bankruptcy, productivity loss, job changes, the criminal justice system, distress of family and parents, breakup, divorce and separation, violence, depression and suicide, and counselling services. The wide variability reflected the Commission's difficulty in attaching a financial value to the emotional impacts of problem gambling.

## **How many New Zealanders have gambling problems?**

There are two major sources of information regarding the number of people who have gambling problems in New Zealand, annual reports on specialist service utilisation and general and special population surveys.

### **Service utilisation**

In 1999, 3,404 first-time callers contacted the national problem gambling helpline to seek information about and/or assistance for gambling problems, a 30 percent increase on the previous year (2,628) (Gruys, Hannifin, MacKinnon & Paton-Simpson, 2000). Two-thirds of these people indicated that they were experiencing problems themselves. The severity of their problems is not known.

Also in 1999, 1,587 new clients accessed specialist counselling services nation-wide, a slight increase on the previous year (1,492). The majority of these clients, 1,257 (80%), were problem gamblers. Most had serious problems that met the criteria for pathological gambling. The remaining clients were family members or others who had a significant relationship with a problem gambler.

There is overlap, of unknown extent, between helpline callers and those who presented for counselling. This is a consequence of helpline callers being referred or advised to seek counselling and because other problem gamblers elected to engage both types of assistance. This means that it is not possible to simply add the helpline and counselling figures together to provide an indication of the total number seeking help from these specialist services. Many problem gamblers also consult other services, especially alcohol and drug treatment centres and agencies, as well as general medical practitioners and mental health professionals working in a variety of settings. However, information is not available on the numbers involved.

The foregoing suggests that at least 2,500 problem gamblers, and perhaps as many as 3,000, contacted one or more specialist problem gambling services for the first time in 1999. While much can be learnt about problem gambling in New Zealand from information obtained from people who have sought specialist help, service utilisation records do not indicate how many people there are in the general population who have recently developed or currently experience gambling problems. This is because most people with problems do not seek professional assistance during a particular calendar year and factors additional to the prevalence of problem gambling play a significant role in determining whether or not people with problems seek help.

## **Problem gambling surveys**

From Phase One of the 1999 NPS, it was estimated that 0.5 percent of New Zealand adults experienced serious gambling problems (probable pathological gamblers) during the six months immediately prior to the survey. A further 0.8 percent were estimated to experience problems of less severity (problem gamblers) during this period. For a variety of reasons discussed in the report on this survey, it was concluded that these estimates are likely to be conservative and that the actual rates may be up to twice as high. In Phase Two, the performance of the main problem gambling measure (the Revised South Oaks Gambling Screen: SOGS-R) used in Phase One was assessed in relation to two alternative measures - a screening test using DSM-IV diagnostic criteria and an interviewer assessment based on DSM-III-R criteria. This analysis also suggested that the SOGS-R provided somewhat conservative estimates.

Because surveys are not a full census and involve samples drawn from larger populations, prevalence estimates derived from survey information contain sampling errors. In the previous paragraph, point prevalence estimates were provided. These estimates are mid points within the ranges that the true population estimates are expected to fall. In the case of gambling problems, it is concluded that there is a 95 percent probability that the current prevalence of serious gambling problems among adult New Zealanders lies within the range of 0.3 to 0.7 percent. The current prevalence of less serious problems lies within the range of 0.6 to 1.1 percent. The 95 percent confidence interval is widely regarded as being an acceptable level of risk. However it is important to note that, on a purely chance basis alone, five out of a 100 surveys could be expected to obtain a result that falls outside these ranges.

**Translated into numbers, on the basis of the 1999 NPS findings, it is estimated (with 95% confidence) that between 7,000 to 20,000 New Zealand adults experienced serious gambling problems and that a further 15,000 to 31,000 experienced less severe problems during the six months prior to the survey. The confidence intervals do not take account of other factors that can influence the estimates. As indicated, based on a variety of considerations (including what are referred to as non-sampling errors) and additional information, it is reiterated that these estimates are considered to be conservative and possibly highly conservative.**

In part, the 1999 prevalence estimates are expected to be conservative because the sample did not include people living in non-residential households including hospitals, residential treatment centres and prisons. In terms of the likely number of problem gamblers involved, the omission of prisons is particularly important. For this reason another part of the NZGS involved surveys of recently sentenced male and female prisoners. These surveys found that 16 percent of men and 22 percent of women serving the first year of their sentences met the criteria for probable pathological gambling during the six months prior to incarceration. A further seven percent of the men and 12 percent of the women were assessed as problem gamblers with less severe problems at this time. Thus, approximately a third of the women and a quarter of the men had significant gambling problems immediately prior to their imprisonment. If this rate applies to all New Zealand prisoners, including those on remand and those who have been in prison for more than a year, it can be concluded that approximately a

further 1,000 adult New Zealanders experience serious gambling problems at any given time.

The NPS is an adult prevalence survey. People under the age of 18 years were not included. There is very little information available on youth problem gambling in New Zealand or Australia. However, general population surveys in other countries have usually found that this group has a significantly higher rate of problem gambling than the general adult population. Based on this information, until local research has been undertaken, it should be assumed that the prevalence is higher for youth than for adults. Given that proportionately more adolescents are Māori and Pacific Islanders, and that these groups were found to have high levels of problem gambling in the NPS, **it is possible that youth rates could be two to three times those of adults. However, this needs to be assessed directly by research using large, representative samples of young people.** Given that the youngest NPS adult group (18-24 years) did not have a higher current prevalence than older adults (25 years and over), it is possible, but unlikely, that New Zealand youth differ from their counterparts that have been studied in other countries.

As just mentioned, ethnic minority groups were included in the NPS and members of these groups were given the opportunity to be interviewed in the language of their choice. However, **small sample size and other considerations mean that findings for these groups are less reliable than findings for other New Zealanders.** After Pacific Islanders, Asians constitute the largest group of this type. Among Asians, Chinese predominate. In the NPS, no Asians with current gambling problems were identified. This is at variance with findings from small-scale surveys of Asian communities in other countries including Australia and information on people seeking counselling for problem gambling in New Zealand. **While some Asian sub-groups may have low rates of problem gambling it is expected that, overall, this rapidly growing sector of the population will have rates at least as high as those of the general population if not higher. Further research is required to clarify the nature and extent of problem gambling among Asians and recent migrants to New Zealand.**

The SOGS-R was the main measure used in the NPS to identify probable pathological and problem gamblers. As mentioned, two additional screening measures were used for this purpose in Phase Two of the NPS to check the consistency of the SOGS-R assessments. However, apart from using these three instruments to identify people with significant gambling problems, responses to the individual questions that make up these scales can also be used to gauge many of the various negative impacts of gambling. A number of additional questions included in the NZGS studies are also relevant in this regard.

While it was estimated that only 0.9 to 1.8 percent of the adult population were current SOGS-R defined probable pathological or problem gamblers, 16 to 18 percent at some time in their lives acknowledged experiencing at least one of the adverse gambling-related problems included in this scale. In many cases the impacts of one or more of these problems will be relatively trivial. However, in other cases, they will be substantial.

In assessing the overall negative impacts of gambling on the population, it is important that attention is not focussed exclusively on people identified as problem gamblers. In total, the negative impacts on the lives of people who are not problem gamblers and

people close to them will probably outweigh those directly associated with problem gambling. This is because people who experience small numbers of negative consequences greatly outnumber those who have more serious problems. This may appear paradoxical but it also applies in other situations, for example with respect to alcohol use. In the case of alcohol, people who are alcohol dependent experience serious adverse consequences and generate substantial problems and costs for other people and wider society. However, from a total population perspective, these problems and costs are outweighed by negative effects such as car crashes, work and recreational injuries, assaults and family dysfunction and breakups that are associated with alcohol use and misuse on the part of people who are not alcohol dependent.

Seven percent of adults, most of whom were not identified as problem gamblers, reported that they had felt nervous about the amount of money they spent gambling. One-point-six percent indicated that they personally considered that they had a problem with gambling at some time and 0.5 percent indicated that they had a problem currently. One percent said that at some stage in their lives they had wanted help to stop gambling.

Four percent of adults considered that their father may have had a gambling problem and two percent considered likewise for their mother.

It is not known what criteria people use to assess their own gambling problems or those of people known to them. However, the self-assessments produce prevalence estimates that are similar to those obtained using the SOGS-R. The estimates for parents are higher than those obtained for the respondents themselves. It is unclear why this is the case. It could reflect a reduction in gambling problems over time. However, this finding could also arise because parents have had longer to develop problems than their children. Additionally, or alternatively, it is also possible that people more readily detect and report problems in other people than in themselves.

## **How many people have recently developed problems?**

In examining health and social problems in a population context, it is important to know:

- How many people currently experience the problem (the current prevalence)
- How many people have experienced the problem at some stage during their lives (the lifetime prevalence)
- How many people have recently developed the problem, for example during the past six or 12 months (the incidence).

Current prevalence can be thought of as a measure of stock, or the scale of problem gambling at a given point in time. Lifetime prevalence refers to the total number of people currently living who have had gambling problems at some time during their entire lives, including the present. The difference between current and lifetime prevalence provides an indication of the number of people who have overcome problems that they had in the past. Incidence can be regarded as a measure of inflow, or the rate at which members of the population who do not have problems develop them.

While many general population surveys have assessed the current and lifetime prevalence of problem gambling, to date no survey has provided estimates of the

incidence of problem gambling. Determining incidence requires following and re-assessing a large, representative sample of people over time. This type of study is particularly important in assessing the extent to which changes in exposure to risk factors (for example gambling availability and expenditure) and buffering factors (such as public education about gambling and problem gambling) influence the development of gambling problems.

## **How serious are problem gamblers' problems?**

As mentioned earlier, gambling problems exist on a continuum. A significant minority of people experience one or a few problems that are often transient, a smaller number experience more serious problems that vary in duration, and a smaller number still have very serious problems that are often chronic or chronically relapsing in nature. For people at the severe end of the continuum, the consequences of their problems are devastating for themselves and often for others in their lives. They not infrequently lead to serious psychological disturbance, relationship breakups, financial ruin, criminal offending, imprisonment and suicide.

**In New Zealand, the large majority of people who are receiving specialist counselling for problem gambling and problem gamblers in prisons have very serious problems that meet the diagnostic criteria for pathological gambling. Many of these people concurrently experience additional psychological disorders including alcohol and other forms of substance dependence and misuse, affective disorders and (in the case of prisoners) antisocial personality disorder. The extent of this co-morbidity requires further study. At this stage it is unclear to what extent these various disorders result from, precede or develop in conjunction with gambling problems.**

Most of the people identified as probable pathological gamblers in the NPS obtained lower SOGS-R scores than those obtained by problem gamblers assessed in counselling and prison settings. This and other information obtained in the NZGS studies suggests that most probable pathological gamblers living in the community have less severe problems than their counterparts who are receiving therapy or are in prison. This is not surprising given that people typically seek professional help for life problems when they are severe or result in a crisis.

In the case of problem gamblers living in the community, people with higher SOGS-R scores more often report that they have wanted and tried to get help for their problems. However, these findings must be tempered by the likelihood that problem gamblers receiving treatment will have greater awareness of their problems and be more willing to disclose their extent than people who have not sought help and who are interviewed in their own homes. Most of the latter problem gamblers were not aware and/or did not acknowledge that they had problems. Thus, it is possible that a comparable score of the SOGS-R or other screening measure will mean different things depending on the context in which it is administered. This matter and its possible implications require further investigation. NPS and prison study respondents in the problem gambling category, on various measures, had less severe problems than those classified as probable pathological gamblers.

While considering the matter of problem gambling severity, it should be noted that it is probable that community surveys fail to pick up some people with particularly severe problems. Given that these people are heavily involved in gambling, typically lead chaotic lives and are experiencing financial difficulties, they are probably less likely to be home when attempts are made to contact them. In the case of telephone interviews, they may also be less likely to have a telephone due to transient residence or disconnection for non-payment of bills. They may also more often decline to be interviewed when contacted or be less candid about their gambling behaviour. **The likely under-inclusion of people with very severe gambling problems is one of the reasons why the NPS prevalence estimates are probably conservative.**

## **Is problem gambling a lifelong disorder?**

Problem gambling, like alcohol problems, received attention from mutual help organisations before it was widely recognised as a mental disorder or significant public health issue. Gamblers' Anonymous (GA) was most important in this regard. GA, modelled on Alcoholics Anonymous, regarded serious problem gambling ('compulsive gambling') as a chronic, life-long disorder that could be arrested through treatment and participation in mutual help groups, but never cured. This thinking strongly influenced the initial conceptualisation of pathological gambling as a mental disorder. It is still reflected in formal diagnostic criteria for pathological gambling that do not require that the relevant signs and symptoms persist at the time of the diagnostic assessment.

Contrary to GA ideology and the notion of chronicity inherent in the pathological gambling diagnostic criteria, follow-up studies of pathological gamblers who have received treatment and the NZGS Longitudinal Survey of problem gamblers identified in the 1991NS indicate that problem gambling outcomes are diverse. Significant numbers of problem gamblers overcome their problems with or without treatment. Within this category, some experience problems of variable severity for varying periods of time, and then cease to have problems. Others continue to have problems but these problems are less severe than in the past. Perhaps more typically, problems fluctuate in severity and include periods of remission and relapse. In other cases, severe problems persist for long periods and may end in suicide or imprisonment. Given this variability, it is difficult to assess the extent and durability of problem remission or treatment outcome without repeat assessments being conducted over a long period of time. No comprehensive study of this type has been undertaken to date internationally.

## **How long do problem gamblers' problems last?**

It is evident from the foregoing section that this is a difficult question to answer and this is another aspect of problem gambling that is poorly understood. In large part this is because, with the exception of the NZGS Longitudinal Survey, there has been no prospective research internationally on the life histories of problem gamblers in the general population. Prospective research assesses people at an initial point in time and then re-assesses the same people at later stages during their lives. While it is possible to study this matter by asking problem gamblers in treatment or problem gamblers in community surveys who are aware that they have problems about their past, information gathered in this way is subject to various recall and reporting biases. **In the case of problem gamblers in treatment settings, irrespective of whether life history information is gathered retrospectively or prospectively, it is also important to**

**appreciate that they are an atypical sample of problem gamblers.** Most problem gamblers do not seek treatment and, for this reason, conclusions reached on the basis of treatment studies cannot be generalised to all problem gamblers.

Information about the duration of gambling problems is important for various reasons. For example, if problems generally persist for only a short period of time, many of the adverse consequences and costs for problem gamblers, people associated with them and the wider community will be similarly short-lived. This said, it is important to note that even if problems typically last for a year to two, if they are severe, enormous damage could result and some of the effects will be of long duration. Suicide is an extreme instance, but bankruptcy, a marriage breakup, being dismissed from a job for dishonesty, committing crimes to finance gambling and gambling debts and imprisonment are some of the outcomes that may have long-term consequences for problem gamblers and other people.

Information about the duration of gambling problems is also important because, in the absence of more definitive information, it can provide an indication of the likely incidence of problem gambling. The NPS prevalence estimate for current probable pathological and problem gambling is 0.9 to 1.8 percent. If these problems typically last for only one to two years and this prevalence estimate is fairly constant over time, this suggests that a majority of people in the population will develop gambling problems at some time. However, if problem gambling is generally a lifelong disorder and the current estimate remains stable, this suggests that a very small proportion of the adult population (only somewhat more than the current prevalence rate) will develop problems.

The national prevalence study conducted in association with the Australian Productivity Commission Inquiry found that problem gamblers who themselves recognised that they had a problem, on average, reported that their problem had lasted for nine years. Over a quarter said their problem was of ten years or more duration. In Phase Two of the 1991NS, people who themselves considered that they had a gambling problem reported, on average, first recognising that they had a problem 11 years ago. Participants in this category who were also assessed by the interviewers as meeting the criteria for pathological gambling reported first recognising that they had a problem eight years ago.

The Commission also undertook a survey of clients receiving counselling for problem gambling. This group also reported having problems for an average of nine years and nearly a third said their problems had lasted for ten years or more. Problem gamblers who favoured gaming machines or casino gambling had problems of much shorter duration than those who favoured track betting. Women also had problems of shorter duration than men. While this might largely be due to the more recent availability of gaming machines and casinos and increased gambling involvement on the part of women, it is also possible that problem gamblers who primarily engage in track betting and men are more prone to persisting problems.

Given that national survey respondents who acknowledged that they had problems and people receiving counselling have more severe problems than survey respondents who do not acknowledge having problems, it appears likely that most people with serious gambling problems have problems of long duration.

Additional relevant sources of information are available for New Zealand. This includes the difference between lifetime and current problem gambling estimates obtained from

the NPS and some of the findings from the longitudinal follow-up of 1991 problem gamblers. This information is more representative of the range of problem gamblers in the general population than that provided by people receiving counselling.

In general population surveys, current (past 6 or 12 months) problem gambling prevalence estimates are typically a half to a third their lifetime counterparts. In the NPS, 55 percent of lifetime probable pathological and problem gamblers were not assessed as having had significant problems during the past six months. This suggests that over a half of people who at some time in their lives had gambling problems no longer did so. While this is the way that the difference between lifetime and current estimates is usually interpreted, it is important to note that the 'lifetime' estimate is based on the recall of events that, for many survey participants, took place a long time ago.

In the Longitudinal Survey it was found that just over a quarter of the 1991 lifetime probable pathological gamblers retained this classification when they were re-assessed seven years later. However, two-thirds scored within the combined lifetime probable pathological-problem gambling range. While it is expected that there will be some change in individuals' current gambling problems over time, lifetime scores should be highly stable. This is because, if people acknowledge having had significant gambling problems at some time in their lives, they should respond similarly when asked the same questions about their past problems on subsequent occasions. Even greater instability was found for people who were in the less serious problem category in 1991.

The Longitudinal Survey findings imply that many people with past gambling problems, especially those who do not experience problems currently, either forget or choose not to report their earlier problems. One implication of this is that the difference between lifetime and current prevalence significantly under estimates the degree of problem reduction over time. Rather than a half to two-thirds overcoming their problems, these findings suggest that over three-quarters do so. Further information regarding this matter was obtained from examining changes in current gambling problems in 1991 and 1998.

Of the people who were assessed as currently being probable pathological gamblers in 1991, approximately a quarter were in this category when re-assessed seven years later. Approximately a third were assessed as current problem gamblers in 1998. Thus, just under a half of people who were classified as currently experiencing serious gambling problems in 1991 no longer reported having either serious or less serious problems seven years later. In the case of the 1991 current problem gamblers, less than one-in-ten scored in this range in 1991. While a slightly larger number had developed more serious problem (i.e. had become current probable pathological gamblers), over three-quarters were non-problematic. These findings are consistent with other indications that people with less severe problems are more likely to overcome them but that a minority is at risk for, and subsequently develops, serious problems.

**While the longitudinal findings just outlined provide the most accurate indication to date of the degree of recovery from gambling problems over time, a cautionary note is required. Not all of the probable pathological and problem gamblers who were initially assessed in 1991 were contacted and re-assessed in 1998. The problem gambling outcome for these people is unknown. However, it is likely that it included disproportionately more people who did not overcome their problems.**

**If so, the survey findings will overstate the degree of problem recovery. Further research is required to clarify this matter.**

In the 1998 Longitudinal Survey, participants were asked if they personally considered that their gambling participation had changed since they had been interviewed in 1991. In contrast to the accounts of change mentioned above, this information is retrospective. Nearly a third of the 1991 lifetime probable pathological gamblers and a quarter of the lifetime problem gamblers considered that their gambling participation had decreased a lot. A further 18 percent of probable pathological gamblers and 11 percent of problem gamblers were of the view that their gambling involvement had decreased a little. In contrast, none of the probable pathological gamblers and only five percent of the problem gamblers indicated that their gambling had increased a lot during this period. However, approximately a quarter in both groups considered that their gambling had increased a little. While self-ratings of changes in gambling involvement do not provide a direct measure of the extent to which problem gamblers' problems reduce over time, it is likely that reports of large reductions in gambling participation reflect a decrease in problem gambling.

### **What factors influence long-term outcomes for problem gamblers including recovery and relapse?**

As indicated, the NZGS Longitudinal Survey found that problem gamblers with more serious problems were more likely than those with less severe problems to continue to experience problems when they were re-assessed seven years later. This study, in addition to problem severity in 1991, examined a large number of other factors in relation to problem gambling status seven years later. The strongest independent predictors of future gambling problems, apart from initial problem gambling severity, were a preference for betting on horse or dog races and the presence of alcohol problems. Problem gamblers with a preference for gaming machines were much more likely to overcome their gambling problems seven years later than those with a preference for track betting. So too were problem gamblers who did not have concurrent alcohol problems in 1991. There were also indications that females and Europeans had a better outcome.

In Phase Two of both the 1991 and 1999 national surveys problem gamblers were asked about factors that led to past increases and reductions in their gambling involvement. The 1999 NPS and prison studies also asked people who were themselves aware that they had gambling problems, whether or not there had been times when their problems had ceased or reduced, and what factors they considered were responsible for these changes. They were also asked if they had returned to having problems after periods of recovery or improvement and, if so, what had led to their relapse.

In the 1991NS, interviewer-assessed problem gamblers reported that the arrival of children and leaving paid employment (retirement or unemployment) were the life transitions that had the most impact in terms of a reduction in gambling. A third considered that their gambling had reduced following both of these transitions. Only five percent of problem gamblers reported an increase in their gambling following the arrival of children. However, a significant minority reported an increase following the termination of paid employment.

Reasons given in Phase Two of the 1991 and 1999 national surveys for reductions in gambling involvement included less money being available, a loss of interest in gambling, not winning, other priorities in life and changed circumstances. Reasons for increased involvement included having more money and more gambling options being available.

Just under 60 percent of 1999 Phase Two respondents who themselves considered that they had had gambling problems indicated that they had experienced at least one period of six months or more when they had been free or mostly free of gambling problems. A half said they had stopped gambling at these times. The great majority believed that these changes mainly resulted from their own efforts. Respondents could give more than one reason and over a half also said that specialist help had assisted. Mental health professionals, mutual help organisations and alcohol or drug treatment centres were most frequently mentioned in this regard. However, in very few instances were these forms of help regarded as the most effective method.

Just under half of the people who said they had problem free or largely problem free periods reported that they had subsequently returned to having gambling problems. This is consistent with the view that for many people, especially those with severe problems, problem gambling fluctuates and is prone to relapse. Reasons given for returning to problematic gambling included more gambling being available, wanting to win money, seeking excitement, lacking willpower to stay away from gambling and using gambling to escape from a new problem.

## **Can problem gamblers return to problem-free gambling?**

In the field of alcohol studies, the matter of whether or not people with serious alcohol problems can subsequently sustain problem free drinking patterns has been controversial. The viewpoint of Alcoholics Anonymous and most treatment providers has been and remains that abstinence is the appropriate treatment goal and that it is irresponsible to provide treatment aimed at promoting 'controlled' drinking. However, research involving general population and treatment samples of people who are alcohol dependent or who have other alcohol-related problems has consistently found that substantial numbers do engage in non-problematic drinking. While many of these people subsequently relapse to previous problem levels, the extent to which they do so does not appear to differ appreciably from those who totally or largely abstain from drinking.

The related questions of whether problem gamblers can return to non-problematic gambling and whether or not this should be a treatment option has also attracted controversy. Much less information is available on this topic than is the case for alcohol. As mentioned, the NZGS Longitudinal Survey is the only longitudinal study of a general population sample of problem gamblers. While retrospective self reports have some relevance, it is only through following problem gamblers for many years and reassessing them at regular intervals that clear answers can be given to these and related questions.

In the previous section, reference was made to the finding that of the self-identified problem gamblers who reported having had problem-free or largely problem-free periods of six months or more, only a half said they had stopped gambling. The remainder had continued to gamble at these times. While retrospective, this suggests that some

problem gamblers, at least temporarily, can reduce or overcome their problems while continuing to gamble.

As mentioned earlier, just under a half (45%) of the people who were currently assessed as probable pathological gamblers in 1991 were non-problematic when reassessed seven years later in the longitudinal follow-up. These non-problem gamblers in 1998 were evenly divided between infrequent or non-gamblers, people who gambled once a week or more only on non-continuous forms (predominantly Lotto) and people who gambled this often on continuous forms. Of those who had less severe problems in 1991, in 1998 over three-quarters were non-problematic. Over half of the non-problematic group were regular non-continuous gamblers and the remainder were equally divided between regular continuous gamblers and infrequent or non-gamblers.

**The findings outlined in the preceding paragraph indicate that almost half of the people who had gambling problems in 1991 no longer experienced significant problems seven years later, and that the great majority of them continued to gamble weekly or more often. This suggests that a return to non-problematic gambling is the rule rather than the exception. However, from these findings, it is not known how long these patterns had been sustained. Neither is it known whether they will be sustained long-term or whether some types of gambling activity are more likely than other types to lead to relapse. Given the very strong association between regular participation in continuous forms of gambling and problem gambling, it could be expected that this type of involvement would increase the risk of problems re-emerging.**

Longitudinal studies involving multiple re-assessment of large samples of problem gamblers obtained from community and treatment settings are also required to fully examine the extent to which non-problematic gambling is sustainable and whether or not particular types of gambling carry a greater risk of relapse than others. While such studies have yet to be conducted, some additional findings from the 1998 Longitudinal Survey are relevant. Apart from people who currently had gambling problems in 1991, the study included people who did not have problems at that time but who had in the past. In 1991 somewhat similar numbers of these people were represented in each of the three current non-problem groups, namely regular continuous gamblers, regular non-continuous gamblers and infrequent or non-gamblers. Seven years later the majority of these people who had had problems in the past continued to gamble and very few were found to have relapsed. While not definitive, this suggests that non-problematic gambling may be sustainable for many problem gamblers. Further research, apart from checking this general finding, could also usefully examine whether some types of people are better able than others to return to 'controlled' gambling and whether some forms of gambling are 'safer' in this respect than others.

### **Are people with gambling problems in the community different from people who seek help from problem gambling services or who are in prison?**

People identified as problem gamblers in the general population, in New Zealand and elsewhere that such studies have been undertaken, on average have problems of much less severity than those of people receiving treatment for pathological or problem gambling. Few people receiving counselling in New Zealand and Australia score within

the less severe problem gambling range. The large majority meets the diagnostic criteria for pathological gambling. Typically, most clients score ten or more on the SOGS or SOGS-R screening tests. Relatively few problem gamblers identified using the same measure in community settings obtain scores of this severity.

Why does this discrepancy exist? As mentioned earlier, it is expected that people who are seeking or receiving treatment will have more serious problems. This, in large part, is likely to arise because most people do not obtain professional help until their problems are severe or they experience a gambling-related crisis. However, it may also be a consequence of people in treatment settings being more aware of and/or candid about the extent of their problems. It is also likely that people with serious gambling problems are under-represented in community surveys as a consequence of their chaotic lifestyles, difficulty in contacting them and, perhaps, an unwillingness to take part in surveys about gambling.

In some studies, apart from having more serious problems, problem gamblers in treatment settings have been found to have higher rates of co-morbid mental disorders including substance dependence and misuse, depression and anxiety-related disorders. However, as with gambling problems, people in this situation may be more aware of and likely to report other mental health problems than their counterparts who have not sought professional assistance.

Relative to their estimated proportions in the general population, young adult and Pacific Islander problem gamblers are under-represented among New Zealand helpline callers and specialist counselling clients. These groups are also under-represented in mainstream mental health services relative to their numbers in the population. Māori appear to be more adequately represented in counselling settings and male and female proportions are similar to those found in the general population surveys.

In the NZGS prison studies, most problem gamblers also had more severe problems than problem gamblers in the general population surveys. As expected, they also differed in that they reported much higher rates of gambling-related offending. Problem gamblers in community surveys rarely mention this type of offending. Although, in part, this is probably a result of its association with particularly serious gambling problems, it also seems likely that this is an aspect of problem gambling that problem gamblers are reluctant to acknowledge in general population surveys. The New Zealand prison rates of gambling-related offending appear to be similar to those that have been found in overseas surveys of problem gamblers in treatment or mutual help groups.

It is important to note that prisoners generally are a highly atypical sector of the population and problem gamblers in prison differ in various ways from their counterparts living in the community or presenting for counselling. In addition to having histories of criminal offending, relative to the general adult population proportionately more prisoners are male, under the age of 30 years, of Māori ethnicity and of low educational and socioeconomic status. Most have a history of childhood conduct disorder, a significant minority have personality disorders, and most experience alcohol and/or drug-related problems. The significant minority of recently sentenced prisoners who were identified as having gambling problems in the NZGS prison studies (approximately a third of women and a quarter of males) shared these characteristics with other prisoners.

Although many recently sentenced prisoners committed crimes to finance gambling and gambling debts, predominantly fraud, theft and other non-violent offences, only a small number began their offending in this way. The majority had offended in other ways prior to engaging in gambling-related offending. However, following the development of gambling problems, criminal activities to finance gambling often became a significant part of problem gamblers' offending profiles. This was especially the case for prisoners with more serious gambling problems. Although little studied in New Zealand, research with problem gamblers in mutual help and treatment settings indicates that most first became involved in criminal activities as a response to escalating gambling problems and debts.

From the foregoing, it is evident that problem gamblers differ depending upon where they are located. Those who seek professional assistance or who are in prison generally have more serious gambling problems and report much higher rates of gambling-related offending than problem gamblers identified in general population surveys. Problem gamblers in prison differ from other problem gamblers in various additional ways, primarily stemming from the fact that most engage in serious offending activities and that relatively few are in prison for exclusively gambling-related crimes. While problem gamblers in general population surveys are more representative of the total population of problem gamblers, it is likely that people with serious problems are under-represented. This includes both problem gamblers living in the community as well as those in prison and other institutional settings. It is also likely that problem gamblers interviewed in general population surveys are less candid about the extent of their problems.

One implication of the differences between problem gamblers in different settings is that caution is required when generalising findings from any particular study to all problem gamblers. To obtain a comprehensive understanding of problem gambling and its economic and social impacts, it is necessary to integrate findings from studies carried out in a variety of settings.

### **Are problem gamblers getting help for their problems and has this changed over time?**

At the time of the 1991 national survey, while there were a few Gamblers Anonymous groups in major population centres, there were no specialised services available for problem gamblers. Since then, a national helpline has been provided and a variety of counselling and therapy services have been established throughout the country and the number of people seeking help has risen steadily (see Figure Four).

Over time, the profile of people seeking help has changed. Initially, the large majority of people contacting the helpline and seeking counselling were European males. In recent years, relatively more women have sought help and present trends suggest that within the next few years male and female consultation rates will converge. The proportion of Māori seeking assistance has also increased steadily, however numbers from other ethnic groups, especially Pacific Islanders, have not appreciably increased. Comparison of information from specialist services and general population surveys suggest that young adults and Pacific Islanders are under-represented relative to the estimated number of problem gamblers in these groups within the community. People with less

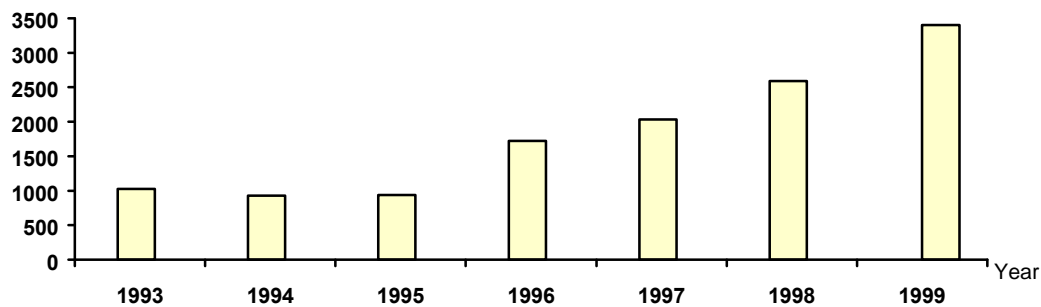
serious problems are also greatly under-represented. While numbers seeking assistance have increased markedly during the past decade, the majority of problem gamblers have never sought or obtained professional or specialist help.

In Phase Two of the 1991 and 1999 national surveys, respondents who at some time considered that they had a gambling problem were asked if they had ever sought help for this reason.

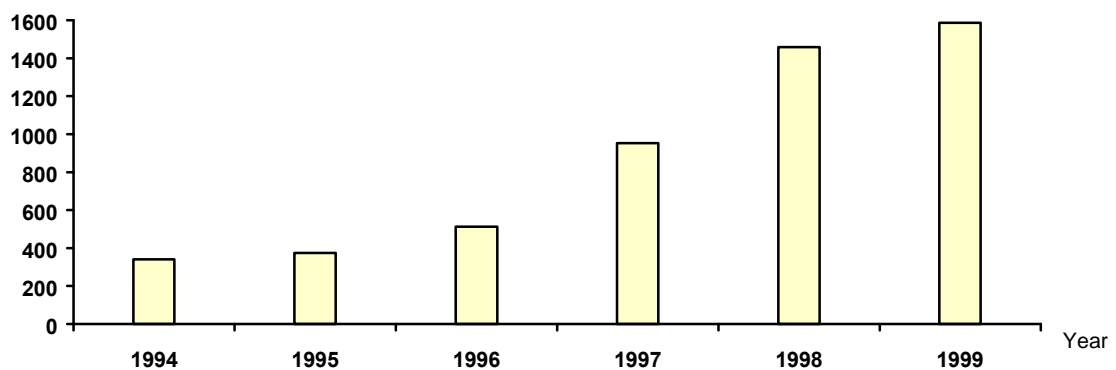
**In 1991, eight percent of self-assessed problem gamblers (2 people) said they had sought help for themselves.** Only friends, family members and mutual help groups were mentioned. Neither indicated that they had sought specialist assistance. While very few had sought help for their own problems, 11 percent of the total sample of problem and non-problem regular gamblers said they had sought help for other people in their lives who they thought had a gambling problem. While friends, family and mutual help organisations (GA and GAMANON) were mentioned most often, a few respondents mentioned doctors and mental health professionals.

**Figure 4: New Calls to National Problem Gambling Helpline, 1993-1999, and Counselling Services Utilisation by New Clients, 1994-1999**

Total New Calls to Helpline



Total New Presentations at Counselling Services



As mentioned earlier, many of the problem gamblers who were first assessed in 1991 were re-assessed in 1998. None of these people, or those who did not have problems in 1991 but subsequently developed them, said (in 1998) that they had sought professional or specialist assistance. However, eight percent said they had sought specialist help for family members or friends. Most of these mentioned family, friends or workmates as sources of potential help. Mutual help groups were the specialist groups mentioned most often. General medical practitioners and mental health professionals were also mentioned.

**In Phase Two of the NPS, 11 of the 33 self-assessed problem gamblers reported 22 instances of help seeking for themselves.** Approximately half of these involved family members, mutual help groups and other informed sources of assistance. In contrast to 1991, approximately half involved specialist services and health professionals. Mental health professionals were mentioned most often, followed by the gambling helpline, alcohol and drug treatment centres and general medical practitioners.

Four percent of the total sample said they had sought help for other people. This does not mean that the percentage has reduced since 1991 as the samples of the two studies are different. While those in both studies who rated themselves as having problems can be meaningfully compared, the 1999 sample included infrequent gamblers and relatively more regular non-continuous gamblers. People in these groups less often reported knowing people who they thought had gambling problems. As in 1991, family, friends and mutual help organisations were mentioned most often. However, in contrast to 1991, the gambling helpline was mentioned and somewhat more referred to mental health professionals.

Recently sentenced prisoners who themselves considered that they had gambling problems were also asked if they had ever received help to stop gambling. Twenty-two percent of men who considered they had a gambling problem and 15 percent of women said that they had received this form of assistance. Mutual help groups were mentioned most often, followed by family, friends, mental health professionals, general medical practitioners and the gambling helpline. Very few of those who sought help while in prison said they had received it.

These survey findings, consistent with the national helpline and gambling counselling data, indicate that in recent years substantially more problem gamblers have sought specialist and professional help to overcome their gambling problems. They indicate that family, friends, other informal support and mutual help organisations continue to play an important role in this regard and also appear to have been approached more often than in the past. Given the severity of prisoners' gambling problems, the findings highlight the need for more accessible services in prisons.

It is important to note that while there appears to have been a big increase in help-seeking on the part of problem gamblers, those who consult specialist or other professional services and those who were asked about this in general population surveys were problem gamblers who recognised that they had problems. However, approximately a half of problem gamblers do not recognise that they have problems and this proportion does not appear to have changed appreciably during the past decade. Thus, while up to a third of self-identified problem gamblers (who are more likely to be those with serious problems) have sought specialist or other professional services at

some time, it appears likely that no more than a sixth of all problem gamblers have done so.

## **Does counselling and therapy make a difference?**

Phase Two of the 1999 NPS provides some information relevant to this question. People who reported having obtained help to overcome their problems were asked how effective this had been. Those who reported problem free or largely problem free periods of six months or more were also asked how this had been achieved.

Most instances (82%) of external assistance for people's own gambling problems were considered very helpful or somewhat helpful. Only 18 percent were considered very helpful or somewhat helpful. A similar percentage of cases (83%) where help was sought for other people's gambling problems were seen as very or somewhat helpful. In the case of both problem gamblers and people who sought help for problem gamblers, informal sources (friends, families, workmates) were rated more highly than mutual help or specialist and professional services.

As mentioned earlier, 61 percent of people who themselves considered that they had gambling problems reported having had a period or periods of six months or more when they had been free or largely free of problems. These people were asked what methods they had used to overcome their problems at these times. More than one method could be given. The large majority mentioned their own efforts. A fifth of cases involved mental health professionals, 15 percent mutual help groups and ten percent alcohol or drug treatment centres. Family or friends were mentioned in ten percent of cases.

People who gave a method by which they reduced or overcame their gambling problems for six months or more were also asked which method had been most effective in this regard. Again, the large majority mentioned their own efforts. Alcohol or drug treatment centres were the only other method mentioned as being most effective.

The question addressed in this section, namely "does counselling and therapy make a difference?" cannot be answered directly by information presented to this point. While most respondents who had obtained assistance from specialist or professional sources rated it as being very or somewhat helpful, it is not known what particular form of assistance had been received. It could have varied from one interview or consultation to in-depth assessment and treatment lasting many months or longer. Although the large majority of people who reported problem free or largely problem free periods attributed this change to their own efforts rather than to professional or specialist interventions, this does not mean that these interventions did not play a significant role for those who obtained them. Most therapies involve considerable effort on the part of clients and a belief in internal control or self-efficacy may be an important treatment goal or a secondary outcome.

Examining factors that are associated with problem gambling reduction among community samples of problem gamblers is important in assessing the extent to which people seek particular types of help as well as the role of social networks and self-recovery. However, evaluation of counselling and therapy including the relative efficacy of different types of intervention requires formal assessment, the most rigorous of which is a clinical trial. Clinical trials involve control groups and long-term follow-up of treated

and untreated clients. This type of research is difficult to conduct and expensive. It also presents a variety of ethical issues.

Preliminary outcome information from counselling services funded by the Problem Gambling Committee suggests that the majority of clients experience reduced gambling problems and improved control over gambling six months after their initial assessment. However, follow-up response rates are not provided and it is not known how the outcomes reported compare with those of people with similar problems who did not receive counselling. It is important to know how many people were not re-contacted and whether or not they differ from those who were. There is reason to believe that those who are not re-assessed are more likely to continue to experience problems. Given the apparently high rate of improvement among problem gamblers who do not receive treatment (especially those with less severe problems), it is also important to undertake evaluations that allow comparisons with untreated problem gamblers. As relapse following treatment for many forms of mental disorder increases with the passage of time, it is also important to extend follow-up assessment beyond six months.

There appears to have been no formal evaluation of counselling or therapy for problem gambling in New Zealand, despite many millions of dollars being spent on such services in recent years. It would be timely to conduct research of this type to determine to what extent funded services 'add value' to outcomes obtained via so-called self recovery and participation in mutual help organisations such as GA. It would also be timely to extend such research to compare the relative efficacy of different types of intervention and to see whether or not efficacy can be enhanced by matching interventions to different client characteristics. Many people with serious gambling problems also experience additional mental health problems including depression and substance dependence. For this reason it will be important to determine whether or not it is necessary to address these problems specifically to obtain long-term improvements in problem gambling and the extent to which these additional problems persist or arise following treatment. As mentioned earlier, the long-term outcomes of abstinence versus controlled gambling treatment also require evaluation.

Problem gambling treatment outcome research is in its infancy internationally and very few studies meet the accepted criteria for clinical trials. Research to date suggests that some forms of therapy are more effective than others. However, little is known about their long-term impact and how they compare with outcomes achieved by people who do not receive treatment.

## **What happens to problem gamblers who do not receive professional help?**

Findings from the NZGS Longitudinal Survey and other New Zealand research that are relevant to this question have been outlined in previous sections. It is possible that many, perhaps most, problem gamblers overcome their problems without professional or specialist assistance. This appears to be especially so for people with less severe problems and without concurrent alcohol problems. While many overcome their gambling problems, the long-term stability of this problem remission is not known. However, there are indications that durable improvement or recovery is not uncommon. Most people attribute these changes to their own efforts and many also mention that family members, friends and mutual help organisations play a significant role. Major life

events such as the arrival of children, maturation and adverse experiences associated with excessive gambling appear to also play a part in what has been referred to as self-recovery or spontaneous remission. So too does financial hardship.

From the foregoing, 'spontaneous remission' appears to be a misnomer and probably reflects lack of knowledge about the complex processes that are involved in the changes that people make in their lives through a variety of life experiences, learning about oneself and relationships with other people. It might also suggest that mental health professionals over-rate the impact of their therapeutic interventions. Rather than discrete therapeutic events, they are probably better regarded as one part of diverse learning experiences that, for some people, contribute significantly to changes that most people see as being guided or controlled by themselves. In recent years research has shown that, at certain times in their lives, people are more receptive to therapeutic interventions and that this readiness may be more important in the change process than the specific nature of the intervention involved.

Public and professional awareness about problem gambling and publicity about treatment may well have a significant indirect impact on self-knowledge and self-recovery processes, possibly greater than that resulting from direct interventions with the minority of problem gamblers who obtain counselling or therapy. This possibility is difficult to assess. As mentioned, research is required to determine to what extent specialist interventions augment self recovery. In this regard it is important to develop and evaluate early intervention as well as more intensive treatment, rehabilitation and relapse prevention programmes. While treatments for most psychological or general health problems do significantly help substantial numbers of people, it is also possible that, in some circumstances, therapy may actually disrupt recovery. Research is also required on this topic to improve efficiency and reduce deleterious impacts.

Increased understanding of self-recovery processes, apart from having potential to improve the efficacy of therapeutic interventions, may also assist in developing other ways to accelerate these processes. Given that problem gamblers often turn to family members or others in their social networks for help, these people may be able to enhance the role that they currently play.

As mentioned earlier, while many problem gamblers apparently reduce or overcome their problems without professional assistance, problems are often of long duration and prone to relapse. This is especially the case for people who have more severe problems, engage predominantly in track betting or who have concurrent alcohol problems. Men and people from some ethnic groups including Māori and Pacific Islanders may also have problems of longer duration than women and Europeans. Further research is required to assess the reliability of these preliminary findings. If valid, it would be helpful to know why this is the case and what might be done to improve self-recovery, mutual help and treatment programmes for these and perhaps other groups.

It is important to appreciate that many health problems improve without professional intervention and that recourse to this form of assistance is typically less often sought than other types of help including advice from friends and family, self medication, lifestyle changes and consultation with non-traditional or alternative health practitioners. Problem gambling is not unique in this regard. While these and other factors may often assist, in the case of problem gambling it is important to note that enormous damage

often results during the period that problems persist - for the problem gambler, for others in their lives and for wider society. Appreciating the widespread occurrence of self-recovery and other agents of change in no way diminishes the importance of finding more effective ways of shortening the duration of gambling problems and reducing the probability of relapse. The widespread availability of appropriate services is important in this regard. However, it is critical that these services are, in fact, appropriate. This requires assessment. It cannot be assumed that current provisions are optimal.

## **Is there a relationship between gambling participation and problem gambling?**

One of the most consistent findings in problem gambling research is that there is a strong relationship between preferences for, regular involvement in, and high expenditure on forms of gambling that are continuous in nature. These forms also typically involve an element of skill or perceived skill and emotional engagement on the part of participants.

From the 1999 NPS, although only approximately one to two percent of the adult population was estimated to currently experience significant gambling problems, this group accounted for 19 percent of total reported gambling expenditure. Given that expenditure on most of the forms of gambling favoured by problem gamblers is considerably under-reported, this percentage is conservative and could well be highly conservative. The Productivity Commission estimated that problem gamblers in Australia account for a third of total gambling expenditure.

In both the 1991 and 1999 national surveys, people reporting weekly or more frequent participation in continuous forms of gambling had markedly elevated rates of problem gambling. For example, in 1999, approximately a quarter of adults who reported taking part this often in gaming machine play were lifetime probable pathological or problem gamblers. A fifth of weekly track betters were also in this category. In addition to regular and past six months non-casino gaming machine and track betting involvement, past six months participation in casino gaming machines, other casino games and TeleBingo were also associated with both lifetime and current probable pathological and problem gambling. Playing cards for money was linked to lifetime but not current gambling problems and taking money bets with friends was associated with current but not lifetime gambling problems. The very high rates of problem gambling found in the NZGS prison studies were also associated with regular participation in and high expenditure on these various forms of gambling. In the case of women prisoners, housie was also important.

In 1999, 63 percent of new helpline callers (people with problems and family members describing problem gamblers) and 61 percent of problem gamblers receiving specialist counselling (new clients) reported that their problem gambling was primarily associated with non-casino gaming machines. Respective percentages for other forms of gambling were track betting (15%; 15%), casino gaming machines (14%; 15%) and casino table games (4%; 7%). Other forms were rarely mentioned.

While regular participation in and high expenditure on any of these four forms of gambling appears to be strongly associated with problem gambling, from the foregoing, in terms of the total number of people involved, it is apparent that non-casino gaming

machines are particularly significant. Similar findings have been obtained in Australia. Track betting and casino gaming machines rank next in this regard, followed by casino table games.

During the first year of the national gambling helpline's operation during the early 1990s, there was little difference between the frequency with which people seeking help mentioned non-casino gaming machines and track betting. Since then, non-casino gaming machines have increasingly dominated and, following the introduction of casinos, casino gaming machines and table games have also entered the picture. However, whereas casino gaming machines have become more important in this regard over time, table games appear to have declined during the past few years.

Female problem gambling appears to have a particularly strong association with gaming machines (both casino and non-casino). Pacific Islanders and Asians are greatly over-represented among clients who report that their problems are linked to casino gambling.

### **Is the relationship between participation in certain forms of gambling and problem gambling causal in nature?**

Establishing causation is a difficult undertaking, especially when experimental studies cannot be readily conducted. While it is apparent that regular involvement in certain forms of gambling is strongly associated with problem gambling and can be regarded as a risk factor for problem development, statistical association does not necessarily mean that the link is causal. It is possible that people with gambling problems or a predisposition for gambling problems are drawn to these forms rather than develop problems as a consequence of their involvement.

The case for a causal relationship between gaming machines and some other forms of continuous gambling and problem gambling is less strongly established than is the case for relationships between tobacco smoking or heavy alcohol use and various health problems. However, converging evidence from a variety of sources is consistent with the view that the relationship is causal. Some of this evidence is summarised here and further relevant information is outlined and discussed in other NZGS reports and the Australian Productivity Commission report.

In North America, where a large number of statewide and provincial general population surveys have been conducted since the mid-1980s, it is evident that prevalence rates have increased over time. Studies undertaken during the mid- to late-1990s generally obtained higher rates than those of earlier studies. During this period gambling accessibility and per capita expenditure increased. This finding is therefore consistent with the view that there is a causal relationship between participation and problem development. However there are other explanations that could, at least in part, account for the pattern of research findings.

A stronger assessment of the relationship between gambling participation and problem gambling is provided by replication studies where surveys are repeated in the same jurisdiction. Fifteen studies of this type, using measures of current problem gambling, have now been conducted in North America. The findings of this body of research are less conclusive. In seven the repeat survey obtained a higher rate than the initial baseline survey and in eight the repeat estimate was lower. However, in most cases

where the interval between surveys was three years or less, the changes were small and generally not significant statistically. In four of the six studies where the gap was more than three years, increases were apparent. In three of these studies the increase was substantial. For the remaining two, moderate decreases were found. Examination of the five most recent replication studies indicates that rates declined in the three jurisdictions that had comprehensive services for problem gamblers and their families and increased in the two that did not (Volberg, 2001).

New Zealand and Australia are the only countries where national-level replication studies have been undertaken. Both involved long intervals between surveys. Two national surveys have also been conducted in the United States but they used different measures of problem gambling and their findings cannot be compared. The New Zealand and Australian surveys both found substantial reductions in problem gambling. However, it is important to note that the Australian baseline survey was confined to major metropolitan areas whereas the 'replication' was truly national in scope. Further, in both Australia and New Zealand, there were some methodological differences between the baseline and repeat surveys. These differences mean that caution is required in comparing their findings. Nevertheless, taken in conjunction with the North American research, these replication studies do not consistently support the viewpoint that problem gambling prevalence invariably increases with rising levels of gambling availability and expenditure. This does not, however, mean that there is not a relationship. It is possible that other factors, such as greater awareness of problem gambling, problem gambling services and changing participation patterns, may to varying degrees counteract the problem generating effects of increased overall gambling involvement. Further research is required to examine this possibility.

It should also be reiterated at this juncture that people who are most at risk for problem gambling are those who take part weekly or more often in continuous forms of gambling and who spend large sums of money on these activities. This relationship was particularly strong in the NPS. While it has generally been assumed that increased gambling expenditure in the general population will result in an increase in the proportion of people in this category, there are indications that this may not invariably be the case. If there is no change or a decrease in the proportion of weekly continuous gamblers with rising per capita expenditure, it would be expected that problem gambling prevalence would remain much the same or decrease. This finding would be consistent with the hypothesis that participation in continuous gambling forms is causally linked to problem gambling. However, it would be inconsistent with the hypothesis that problem gambling prevalence is invariably associated with increases in per capita gambling expenditure or the increased availability of gambling activities.

Earlier, reference was made to the five most recent North American replication studies. It is of interest, in the present context, that although gambling expenditure increased in all cases, the proportion of adults reporting weekly or more frequent gambling participation actually reduced in all five jurisdictions. These decreases ranged from 24 to 65 percent and are consistent with what was found in New Zealand when the 1991 and 1999 national survey findings were compared. In the North American studies, in four cases the proportion of adults who reported that they had not gambled during the last 12 months increased. These increases ranged from four to 57 percent. In New Zealand, a moderate increase was also evident for people who did not report having gambled during the past six months. In the North American studies the proportion of people who gambled infrequently (not weekly but within the past year) increased in four

cases (from 1 to 19%). This was also the case in New Zealand. The percentage of people who gambled during the past six months but not on a weekly basis increased moderately.

The findings presented in the previous paragraph are inconsistent with the assumption that rising per capita gambling expenditure is associated with a rise in the proportion of people who gamble on a regular basis. Rather, these findings suggest that in relatively mature gambling markets increased per capita gambling expenditure does not necessarily, or perhaps even usually, reflect a rise in the number of frequent gamblers (the group most at risk for problem gambling). Indeed, it would seem that it may take place when the proportion of frequent gamblers is reducing and the proportion of occasional and non-gamblers is increasing. However, what appears to be happening is that the other major gambling category expands - people who gamble on a non-regular (less than weekly) basis. Further research is required to determine to what extent this expanding group of infrequent gamblers accounts for the increase in gambling expenditure and to what extent it is accounted for by greater expenditure on the part of the shrinking number of regular gamblers.

Although reduced proportions of frequent gamblers were evident in all five of the recent North American studies, it will be recalled that problem gambling prevalence only decreased in three and, in one instance, it increased substantially. This latter state, interestingly, was the only one where a decrease was found in the proportion of people who did not gamble in the past year. Further investigation of this topic is warranted. Both repeat surveys and longitudinal studies are required to examine change over long time spans. This is necessary because there may be quite lengthy time lags between changes in general population gambling patterns and problem gambling prevalence. It would also be helpful to examine major subgroups within the population to determine whether they respond similarly over time.

Research recently conducted for the Australian Productivity Commission is also relevant. This involved an examination of problem gambling prevalence rates in all Australian states and territories in relation to gaming machine numbers and expenditure on non-lottery (continuous) gambling forms. A moderately strong association was found between the availability of gaming machines and both gaming machine expenditure and problem gambling prevalence. These findings are consistent with the view that involvement in continuous forms of gambling, including gaming machines, is a major risk factor for problem gambling.

The Productivity Commission concluded that the strongest support for a causal association between gambling involvement and problem gambling is provided by the recent rise in problem gambling consultation rates among women, an increase that followed the increased availability of gaming machines and participation on the part of women. As mentioned earlier for New Zealand, the great majority of women problem gamblers in Australia have problems associated with gaming machines. The author of the present report shares the view of the Commission in this regard.

The NZGS also provides information that is relevant to this discussion. The Longitudinal Survey allowed an examination of the impact of the introduction of casinos in Auckland and Christchurch. This was possible because samples of regular and problem gamblers were assessed before and after the introduction of casinos and included a control group that lived in a major centre that does not have a casino. Other factors that differed

between the various centres that are known to or might be linked to problem gambling were controlled statistically. The study did not demonstrate that the introduction of casinos had a significant impact on participants. However, the sample size was quite small and only included regular and problem gamblers who, by the time of the follow-up survey, were all in their mid-twenties or older. Many reduced their interest and involvement in gambling during the seven-year study period. In other words, the findings, while having some relevance to the effects of introducing casinos on regular and problem gamblers, cannot be generalised to the adult population as a whole.

The 1999 NPS also assessed the association between the availability of casinos and problem gambling by comparing the problem gambling prevalence of Christchurch and Auckland residents with people living in other parts of New Zealand. This study also controlled statistically for various other factors known to have some influence on problem gambling prevalence. In contrast to the Longitudinal Survey, on some problem gambling measures Auckland and Christchurch residents had elevated prevalence rates when known determinants, other than the presence of casinos, were taken account of. Given that a large representative sample was used, these findings can be more confidently generalised to the total adult population. Recent American research has also concluded that accessibility to casinos is associated with higher rates of problem gambling.

In addition to community and general populations studies of the type described, examination of the role of participation in particular forms of gambling in problem gambling development requires longitudinal studies, ideally commencing during mid-childhood prior to the development of problems and continuing well into adulthood. As mentioned earlier, this type of study has yet to be undertaken. While a poor proxy for prospective longitudinal investigation, retrospective accounts by problem gamblers and comparison of these accounts with those of non-problem gamblers have some relevance. A number of problem gamblers in treatment report quite rapid problem development following their initial involvement with gaming machines or other forms of continuous gambling. Phase Two of the NPS found that, relative to non-problem gamblers, adult problem gamblers reported from the outset of their gambling careers that they more often participated in and favoured forms of gambling that are associated with problem gambling in adults. They also more often reported growing up in families with higher levels of gambling involvement, gambling with family members, spending more and having longer gambling sessions.

## **Are some people more at risk for problem gambling than others?**

Problem gamblers have been found to differ from non-problem gamblers in a variety of ways. When large numbers of risk factors are examined together using multivariate statistical procedures that take account of inter-relationships between these factors, gambling participation measures typically emerge as the strongest independent predictors of problem gambling. These measures include a preference for, frequent participation in and high expenditure on certain forms of continuous gambling. As mentioned earlier, in New Zealand about one-in-four regular non-casino gaming machine and one-in-five regular track betters are lifetime probable pathological or problem gamblers. Thus, people who participate weekly or more often in these and some other continuous forms of gambling are at very high risk for problem gambling.

Research in various countries has consistently found that a number of sociodemographic attributes are associated with problem gambling including male gender, youth, membership of particular ethnic groups, low educational and/or occupational status and residence in metropolitan areas. In the 1991NS, the major risk factors for problem gambling in this category included being unemployed, of male gender, of Pacific Island or Māori ethnicity, aged under 30 years and single status.

There are indications, especially from research in countries such as Australia where gambling is widespread throughout the community, that sociodemographic differences between problem and non-problem gamblers have reduced in recent years. For example, the national Australian survey conducted for the Productivity Commission found that apart from youth, only minor differences of this type were evident. The NPS also found that a number of variables that characterised problem gamblers in 1991 no longer did so in 1999. This was more apparent in the case of current problem gamblers than lifetime problem gamblers, a finding consistent with the notion that risk factors have changed over time. Major risk factors for current problem gambling in 1999 included Māori and Pacific Island ethnicity, being in paid employment, lacking educational qualifications or having vocational or trade qualifications, Christchurch residence, Catholicism, being born outside New Zealand, Europe, Australia and North America, and living in a household with an income of NZ\$40,001-50,000.

In 1999, 44 percent of current problem gamblers were Māori or Pacific Islanders, a similar percentage to what was found in 1991. However, notable differences were apparent in 1999 with respect to gender, age and employment status.

In 1999, male current probable pathological gamblers no longer outnumbered females, although gender differences remained for those with less severe problems. This is consistent with the helpline and counselling presentation data, the increased involvement of women with gaming machines and a reduction in the difference between men and women with respect to regular continuous gambling participation and gambling expenditure.

People aged 18 to 24 years, previously the age group with the highest prevalence rate, had the second lowest rate in 1999 after people aged 65 years or older. Whereas, in 1991, 29 percent of current probable pathological gamblers were unemployed, in 1999 no unemployed people were identified as problem gamblers and only a small number had less severe problems. These findings were unexpected, but are consistent with reductions in gaming machine involvement found in these groups from 1990 to 1995 in Department of Internal Affairs surveys. They may be linked, at least in part, to reductions in benefit payments during the mid 1990s, rising student fees and associated financial hardship for these and some other sectors of the population. However, given the small subsample sizes, it is important that further research is conducted to check the reliability of these findings prior to concluding that they are definitive.

A number of studies, including the 1991NS and NZGS surveys, have found that problem gamblers much more often than non-problem gamblers report having a parent or parents with gambling problems. Thus, parental problem gambling appears to be an important risk factor for problem gambling. However, further research is required to independently assess the problem gambling status of parents and other family members and to determine why parental problems increase the risk for their offspring. Twin studies could assist in examining the possibility that genetic factors play a part. To date, NZGS

findings of higher gambling involvement in the families of origin of problem gamblers, as well as early introduction to gambling, and more frequent involvement during childhood suggest that learning and family socialisation are involved.

Other gambling-related risk factors identified in the NPS include reports of usually gambling for long periods of time, gambling alone, gambling as a hobby or habit and having had large wins. While these factors could precede the development of problems, they could also arise during problem development. Longitudinal study is required to clarify this as well as the temporal sequence of other factors that appear to influence the development of gambling problems.

A number of studies have investigated personality factors and the mental health status of problem gamblers in various settings. With respect to personality, problem gamblers are a diverse group and it has not been consistently demonstrated that problem gamblers differ appreciably from non-problem gamblers with respect to personality attributes existing prior to the development of their gambling problems. The 1991NS and NZGS surveys indicated that problem gamblers have higher rates of non-psychotic mental disorder than members of the general adult population. Higher rates of psychological disturbance including depression and a number of anxiety-related disorders have been demonstrated in clinical and prison samples. Consistent with these findings, increased risk for suicide attempts and completed suicides have also been found in some studies. Relative to other members of the adult population, higher rates of alcohol problems and hazardous alcohol consumption, tobacco and illicit substance use have also been found in a number of studies including the NPS. Again, these differences are generally more apparent in clinical and mutual help group settings, probably reflecting both increased problem gambling severity and greater self awareness and willingness to disclose problems. Elevated risk for a variety of physical health problems have also been found in some studies, however problem gamblers in the NPS did not report lower self-rated general health than non-problem gamblers.

## **Māori and Pacific Island problem gamblers**

The 1991NS and NPS found that Māori and Pacific Islanders are at much greater risk for problem gambling than other major ethnic groups in New Zealand. In recent years, Māori have also been significantly over-represented, relative to their representation in the adult population, among people seeking help for problem gambling from specialist problem gambling services. Māori counselling presentations appear, however, to be more consistent with their representation among problem gamblers living in the community. Earlier it was suggested that the inconsistency between Pacific Island prevalence data and help-seeking is probably a result of low presentation rates rather than indicating an error in the prevalence estimates obtained from the 1991 and 1999 surveys.

The national surveys are general population surveys and, other than for Pakeha or European New Zealanders, Māori, Pacific Island and other ethnic samples were not sufficiently large to provide detailed information about gambling and problem gambling specific to these populations. Because Māori are greatly over-represented in New Zealand prisons, more adequate samples were obtained from the NZGS prison surveys. However, as indicated, this is an atypical sector of the problem gambling population and findings from these studies cannot be generalised to all Māori problem gamblers.

From the 1999 NPS it was evident that Māori had slightly higher levels of regular (weekly or more frequent) gambling involvement than New Zealand adults generally (47% versus 41%). Somewhat less were infrequent or non-gamblers (52% versus 59%). In comparison to adults generally, Māori also more often reported having a favourite form of gambling. The most notable difference in this regard was the higher percentage of Māori who reported favouring non-casino gaming machines (9% versus 3%). Māori also reported higher levels of participation in this form of gambling during the past six months (25% versus 14%) and somewhat more involvement in taking money bets with friends and playing TeleBingo. There appeared to be little difference between Māori and non-Māori with respect to reasons given for gambling.

Proportionately more Māori than adults generally reported typical gambling expenditure of NZ\$40 or more per week (34% versus 23%). Māori also had somewhat higher average expenditure (NZ\$49 versus NZ\$41). However, the 2000 DIA survey found that Māori and non-Māori expenditure were similar, in contrast to the situation in the 1990 and 1995 surveys where Māori spent more. From the DIA surveys, whereas adults generally reported spending somewhat more in 2000 than in 1990, Māori spent approximately half what they did previously. Given the smaller sample size and lower response rate of the 2000 DIA survey, less confidence can be placed in its findings than those of the NPS. However, it does seem likely that the gap between Māori and non-Māori gambling expenditure has decreased during the past decade. Similar reductions have been evident for young adults, people of lower socioeconomic status, unemployed people and beneficiaries. Māori are over-represented in these groups.

In the NPS, Pacific Islanders reported slightly lower levels of regular involvement in continuous and non-continuous forms of gambling than the general adult population (9% versus 11% and 27% versus 30% respectively). A greater difference was evident with respect to people who had never gambled or not gambled during the past six months. Twenty percent of Pacific Islanders were in this category compared to 14 percent of adults generally. However, although slightly fewer Pacific Islanders gambled on a weekly basis and relatively more were non-gamblers, 41 percent reported typically spending NZ\$40 or more per month on gambling compared to 23 percent of adults generally. Pacific Island adults' average monthly gambling expenditure was also significantly higher than that for the total New Zealand adult population (NZ\$62 versus NZ\$41). Similar expenditure differences were found in the 2000 DIA survey. These findings indicate that while fewer Pacific Islanders take part in gambling, a disproportionate number of those who do, spend large amounts. Expenditure information is not available for Pacific Islanders in previous years. Consequently, it is not known to what extent their expenditure has changed over time.

Mention has already been made of the high problem gambling prevalence rates for Māori and Pacific Islanders. From the NPS, it was estimated that 31 percent of current probable pathological and problem gamblers were Māori and 14 percent were Pacific Islanders. The proportions of Māori and Pacific Islanders in the general adult population at the time of the survey were 12 percent and four percent respectively. These two ethnic groups were also significantly over-represented in the 1991NS.

Māori and Pacific Islanders differ from New Zealand adults as a whole with respect to a number of sociodemographic attributes that are known to be associated with problem gambling. Consequently, the question arises concerning the extent to which factors

other than ethnic identify account for high Māori and Pacific Island prevalence rates. In the 1991 and 1999 surveys, multivariate analyses were conducted to determine whether or not Māori and Pacific Island ethnicity remained risk factors when the effects of other factors were controlled statistically. In both surveys, it was found that Māori and Pacific Island ethnicity per se were significant risk factors. Furthermore, of the various sociodemographic variables examined in the NPS, Pacific Island and Māori ethnicity emerged as the strongest independent risk factors for both current and lifetime probable pathological and problem gambling. In the case of current probable pathological and problem gambling, Pacific Island ethnicity was associated with a six-fold increase in the likelihood of being a problem gambler and Māori ethnicity was associated with a four-fold increase.

Earlier it was mentioned that in the 1998 Longitudinal Survey, non-Europeans (primarily Māori and Pacific Islanders) were less likely than Europeans to have overcome their gambling problems when re-assessed seven years later. This finding also came from a multivariate analysis that took other factors associated with a poor outcome into account. While this finding should be regarded as tentative for a variety of methodological reasons, it raises the possibility that Māori and Pacific Islanders are more likely than European New Zealanders to have persisting gambling problems.

In many of the tables included in the NPS report, Pacific Islanders are combined with people from other ethnic minority groups. Some of the other NZGS reports, including Phase Two of the NPS and the prison studies, also include information on Māori and Pacific Island gambling and problem gambling. However, in many cases the sample size is too small to allow reliable conclusions to be reached. In the case of the prison studies, while the Māori samples are relatively large, the respondents are atypical of people living in the community and their findings cannot be generalised to all Māori or to Māori problem gamblers.

**From the information presented in this section and in other NZGS reports, it is evident that Māori and Pacific Islanders have very high rates of problem gambling. With the exception of some Native American groups, they appear to be among the highest recorded internationally. Furthermore, while rates appear to have reduced in a number of other previously high-risk groups, this is not evident for Māori and Pacific Islanders. There are also indications that their problems display greater persistence and, in the case of Pacific Islanders, current counselling services are significantly under-utilised. Apart from problem gambling, some other aspects of gambling participation by Māori and Pacific Islanders appear to differ from that of other New Zealanders.**

Historically, it appears that Māori and other Polynesian languages lacked words for gambling and there is no evidence of gambling as defined in this report having been part of their societies prior to European contact. While it is possible that this lack of historical experience may play a role in increasing susceptibility to gambling problems, gambling has long been a part of mainstream culture, especially male working class culture, in New Zealand. While Pacific Islanders, especially those who are recent migrants, may have had less exposure, gambling appears to be condoned and widely used as a means of fundraising by Pacific Island churches. Organised religion plays an important role in Pacific Island communities, both in New Zealand and in the home islands.

From information from specialist counselling services, there are indications that Māori women may have particularly high rates of problem gambling, associated with gaming machines and housie, a form of gambling that is more common among Māori women. In the case of Pacific Islanders, on the other hand, it appears that men are more likely to have gambling problems. However, much of this information is anecdotal. Further research on gambling and problem gambling among Māori and the various Pacific Island groups living in New Zealand is necessary to advance understanding of their extent and nature. This could include in depth qualitative studies of particular groups and communities as well as large-scale probability surveys.

## Other ethnic groups and migrants

At the time the NPS was conducted, Asians constituted just over four percent of the adult population, slightly larger than the combined Pacific Island group. The majority of Asians are Chinese and most are migrants, many of them recent migrants. During the past decade this sector of the population has grown rapidly and continued growth is anticipated. A further two percent of adults has ethnicities other than European, Māori, Pacific Islander or Asian. Most of these people are also migrants and come from a wide variety of countries.

Although there are anecdotal reports and some small scale studies of people from Asian and other 'minority' ethnic groups in New Zealand, very little is known about gambling and problem gambling on the part of this sector of the population. Although included in the various national surveys, the sub-sample sizes are generally too small to allow reliable conclusions to be reached. The response rates for these groups are also typically lower than for the overall samples and, as a consequence, may not be representative.

In the 1991NS, Asians and people in the 'other' residual ethnic category had similar prevalence rates of probable pathological gambling to Europeans. However, Asians had higher rates of less severe problem gambling. In the 1999 NPS, as mentioned earlier, although no Asians were identified who had current gambling problems, as in 1991 they had a higher rate of less severe lifetime problem gambling. In contrast, people of 'other' ethnicities had higher lifetime and current probable pathological prevalence rates than Europeans, but a smaller proportion had less severe problems. Their combined probable pathological and problem gambling rate was similar to that of Europeans. **These findings, while suggesting that Asians and people of other ethnicities are not at high risk for gambling problems compared to adults generally, must be treated with extreme caution. While the major reason for caution is the small sample size, other methodological factors may also reduce the quality of the information specific to these groups.**

The NPS found that being born outside New Zealand, Europe, Australia and North America was a risk factor for problem gambling. Asians and Pacific Islanders are the largest groups within this category. Migrants resident for less than four years had lower prevalence rates than adult New Zealanders generally. However, migrants who had resided in New Zealand for more than four years had similar rates to those of the adult population as a whole.

Asian presentation rates at specialist problem gambling counselling services (4%) are consistent with the proportion of Asian adults in the total population. In contrast to other problem gamblers, a high proportion of Asians attending counselling indicate that casino table games are their primary gambling mode and low proportions mention non-casino gaming machines and track betting. Asian clients also differ from people from the other ethnic groupings with respect to the very high magnitude of their gambling losses immediately prior to attending counselling. People in the residual 'other' ethnicity category appear to have very high counselling presentation rates relative to their representation in the general population. However, from the relevant problem gambling services reports, it is unclear whether or not the definitions used correspond to those used in the census. This group appears to be similar to Europeans with respect to primary modes of gambling and the magnitude of reported gambling losses. As with the general population survey findings, the clinical data are derived from small samples and must, as a consequence, be treated with caution. Furthermore, it is not known how representative people who attend specialist counselling services are of Asian and 'other ethnicities' problem gamblers in the general population.

In the NPS, relative to other major ethnic categories, a large number of Asians (just over a third) reported that they had not gambled during the past six months. Compared with the general adult population, low proportions gambled regularly on continuous or non-continuous forms. People of other ethnicities were also under-represented among regular continuous gamblers but not among non-gamblers and regular non-continuous gamblers. People born in countries other than New Zealand, Europe, Australia and North America and recent migrants also included significant proportions of non-gamblers. As with Asians, these groups also included smaller proportions of regular gamblers. These similarities are not surprising given that both groups comprise relatively large numbers of Asians as well as Pacific Islanders and people of 'other' ethnicities.

In the case of migrants who had been resident for four years or more, although the proportion of non-gamblers slightly exceeded that for the general adult population, there was no difference with respect to the proportion that gambled regularly.

Reported average gambling expenditure for Asians was similar to that of Europeans and similar proportions reported typically spending NZ\$40 or more per week. People of other ethnicities, on the other hand, reported somewhat lower expenditure. In contrast, people born outside New Zealand, Europe, Australia and North America reported higher average expenditure and proportionately more were in the NZ\$40 per week and over category. Recent migrants reported average expenditure that was somewhat lower than that of non-migrants. However, those who had been resident for four years or more had similar average expenditure similar to that of non-migrants.

From the foregoing, it appears that gambling patterns among Asians and other ethnic minorities differ in various ways from those of other New Zealanders. This may be especially the case with recent migrants. This group and Asians and Pacific Islanders generally (who also constitute a significant proportion of recent migrants), are of interest in that they have a bimodal pattern of gambling engagement. More specifically, they include relatively large proportions of non-gamblers, occasional gamblers and people who spend little or nothing on gambling, as well as a significant minority who spend substantial sums on a regular basis.

The bimodal pattern suggests that a number of the larger ethnic groups included in these categories have been recently introduced to gambling or new forms of gambling that have not yet become widely distributed throughout these sub-populations. It is likely that these groups are at high risk for the development of gambling problems. However, while evident for Pacific Islanders, neither counselling nor national survey data clearly indicate that this is the case for Asians. Further research with the various Asian sub-populations in New Zealand and in other countries is required to examine this hypothesis.

While it appears that recent migrants quite quickly adopt levels of gambling participation and expenditure that are similar to those of New Zealanders generally, there may remain differences in the forms of gambling that are favoured. The meaning and role of gambling within ethnic communities may also vary, as may the significance and meaning of problem gambling. These possibilities require investigation. It should be cautioned that the comparison between recent and longer-term migrants is confounded by differences in the ethnic composition of the two categories. For example, the recent migrant group includes more Asians and less Europeans. Investigation of changes in gambling participation and problem gambling associated with acculturation will require longitudinal studies of specific migrant groups. Apart from providing information that is currently lacking, this research can be expected to raise awareness and assist in developing appropriate education, prevention and treatment programmes for ethnic minority groups.

## **What are the major impacts and costs of excessive and problem gambling?**

Earlier, reference was made to the benefits of gambling to many people who participate in it and to the wider community. A number of the adverse consequences of gambling, including 'excessive' gambling that falls short of the threshold for the classification of problem and pathological gamblers, have also been mentioned. These consequences and impacts are evident in a number of different domains. As mentioned, in addition to immediate impacts on individuals directly involved in gambling, they often extend to family members, others in the gambler's social networks and wider society.

Financial impacts are particularly common and generally increase with the severity of gambling problems. So too are impacts on gamblers' health and wellbeing, study and work performance and interpersonal relationships. More serious gambling problems not infrequently lead to criminal offending and the provision of health, counselling and related services for problem gamblers impose financial costs. Some of these impacts are immediate. Others are more prolonged or delayed, for example adverse consequences for children and subsequent generations. Typically, many of these effects occur together and are inter-related in complex ways.

### **Personal impacts**

At the core of problem gambling is a preoccupation with and loss of control over gambling. These gambling-related characteristics give rise to financial problems of varying severity and create a variety of additional problems for problem gamblers in other spheres of their lives including their interpersonal relationships. Apart from frustration, anxiety, anger and guilt directly related to their gambling problems, additional

stress is generated by these secondary impacts. In many cases this gives rise to physical and mental health problems including depression, anxiety-related disorders and, in extreme cases, suicide attempts and suicide.

In Phase Two of the NPS, two-thirds of problem gamblers said they at least sometimes felt guilty when they finished gambling. Nine percent of non-problem gamblers reported like-wise. Sixty percent of problem gamblers said that they felt depressed after losing heavily compared to one percent of non-problem gamblers. Over a third of problem gamblers and two percent of non-problem gamblers reported that they had used gambling as an escape when they felt depressed. These findings suggest that while problem gambling often gives rise directly to depressed mood states, a significant minority of problem gamblers also uses gambling as a means of distraction when they are feeling depressed. As indicated earlier, this appears to be one of reasons why gambling is particularly rewarding, at least in the short-term, for problem gamblers and some non-problem gamblers.

Studies of problem gamblers in treatment settings in various parts of the world have found significantly elevated rates of depressive disorder, depressive symptoms and suicide attempts relative to their prevalence in the general adult population. While in some cases depression precedes problem gambling and may play a role in its development, it appears that depression is more often a consequence of problem gambling and associated problems. Further research is required to examine relationships between problem gambling and depression over time.

Depression is major cause of disability, typically ranking among the top four or five illness-related contributors to 'disability adjusted life years' in OECD countries. It is also the major contributor to suicide, a significant cause of death, especially among adolescent and young adult males. The Australian Productivity Commission estimated from psychiatric prevalence data that gambling accounts for approximately nine percent of all episodes of depression lasting two weeks or longer per annum. While the percentage may be lower in New Zealand given that problem gambling appears to be less prevalent than in Australia, this topic clearly warrants investigation. On the basis of available information, it seems likely that problem gambling is a significant contributor to both depression and suicide. From this, it follows that problem gambling should be taken into account in public health programmes directed at the prevention of depression and suicide.

The 1991NS found that pathological gamblers identified in the general adult population had rates of serious and mild to moderate depression that were more than double those of regular non-problem gamblers. None of these problem gamblers were receiving professional assistance for gambling problems. While higher than for non-problem gamblers, rates of depressive symptoms in this and other community surveys are much lower than rates for problem gamblers who are receiving treatment. There are also indications from New Zealand research that problem gamblers who seek specialist help have greatly elevated rates of suicidal thoughts and suicide attempts.

The 1991NS also found that serious problem gamblers had a significantly elevated rate of non-psychotic mental disorder, again approximately double the rate for non-problem regular gamblers. While the measure used, the General Health Questionnaire, is not specific for particular psychiatric disorders or symptoms, people identified as 'cases' have levels of psychological disturbance similar to those of people who present to

psychiatric outpatient clinics for treatment. The majority of people in this category have depressive and anxiety-related disorders. Although higher rates of non-psychotic mental disorder were evident among serious problem gamblers assessed in 1991, this was not the case when the same measure was used in Phase Two of the NPS in 1999. However, this was probably a consequence of proportionately more problem gamblers with less severe problems being included in the 1999 survey. The likelihood of experiencing co-morbid psychological disorders increases with problem gambling severity.

The NPS did not find that problem gamblers had higher levels of self-rated, general ill health or more frequent visits to general medical practitioners. However, they had elevated levels of alcohol consumption and hazardous drinking and regular tobacco use. While not common among problem or non-problem gamblers, substantially more problem gamblers also reported using cannabis. Excessive alcohol consumption and regular tobacco use are major risk factors for a variety of major physical health problems in New Zealand. High levels of stress and depression are also linked to a number of physical health problems. These findings are consistent with findings of high rates of alcohol and substance dependence and misuse among clinical samples of problem gamblers overseas. They also suggest that problem gamblers will be at greater risk for a variety of physical health problems including cardiovascular and respiratory diseases. Again, there is some evidence for higher rates of physical illnesses from overseas research. This topic requires further investigation that could also consider reasons for inter-linkages between gambling, substance misuse and physical ill-health.

As mentioned earlier, problem gamblers who also had hazardous drinking or alcohol problems were found in the Longitudinal Survey to be more likely to continue to experience gambling problems seven years later than those without these co-morbid problems. This finding, combined with the finding that significant numbers of problem gamblers also have problems with alcohol, further underlines the importance of conducting research to clarify relationships between these disorders and how they are best treated. This includes consideration of 'symptom substitution'. The Longitudinal Survey found that some people who apparently overcame their gambling problems either developed or continued to experience alcohol problems. The extent to which this occurs among problem gamblers and whether or not it extends to other forms of substance misuse or mental disorder is unclear.

The prison studies also examined mental and physical health in relation to problem gambling. While the problem gamblers in prison had higher rates of some mental disorders, hazardous alcohol use and the use of illicit substances than problem gamblers in community settings, so too do prisoners generally. For this reason, on a number of measures, there was no difference between problem and non-problem gamblers in the prison surveys. However, there were exceptions. For example, both male and female problem gamblers had significantly higher rates of childhood conduct disorder than non-problem gamblers. The males also had higher rates of antisocial personality disorder currently. It is probable that these disorders preceded the onset of problem gambling and may well have played a significant part in its development. However, while this subgroup of problem gamblers is large in prisons, overseas research suggests that it is much smaller in treatment settings and, presumably, in general population samples. Again, this is a topic that warrants further study and can be expected to have relevance to the design of appropriate treatment programmes for

problem gamblers who have long-standing personality disorders that may predispose them to problem gambling, drug misuse and antisocial behaviour.

Female prisoners, in contrast to male prisoners but similar to problem gamblers in treatment and community settings, were found in the women prisons study to have significantly elevated rates of psychological disturbance. This was perhaps an unexpected finding given the very high levels of distress and psychological disorder among women prisoners generally. It suggests that problem gambling gives rise to substantial additional stress in the lives of these women.

## **Financial impacts**

Problem gamblers' high levels of gambling involvement and characteristics of their play, for example 'chasing' to try to win back losses, typically result in very high gambling expenditure. As mentioned earlier, from the NPS it was estimated that the 1.3 percent of adults who were identified as problem gamblers accounted for 19 percent of total reported gambling expenditure. In contrast to non-problem gamblers' average monthly expenditure of NZ\$34, current problem gamblers reported spending NZ\$526. Problem gamblers also displayed much wider variability in their gambling expenditure with some reporting extraordinarily large average monthly expenditure. Again, as mentioned earlier, gambling expenditure on forms of gambling favoured by most problem gamblers is significantly under-reported, whereas Lotto and other lotteries expenditure is over-reported. This means that the actual average monthly gambling expenditure of problem gamblers derived from the NPS will be conservative, as will the size of the difference between problem and non-problem gamblers. These findings are consistent with those from Australia and some other countries.

The Australian Productivity Commission made adjustments to take account of likely under-reporting of problem gamblers' expenditure and concluded that serious problem gamblers (equivalent to NPS current probable pathological gamblers) accounted for a third of overall gambling expenditure in Australia. Given the lower prevalence of problem gambling in New Zealand, the percentage would be expected to be lower for this group. However, it is likely that the combined probable pathological and problem gambling percentage could well be this high or somewhat higher.

A survey of problem gamblers seeking help from specialist gambling counselling services in New Zealand during 1999 found that the average gambling loss during the four weeks prior to initial assessment was NZ\$2,400 (Gruys, Hannifin, MacKinnon & Paton-Simpson, 2000). The median was lower, NZ\$820. The large difference between the mean and median was a consequence of a small subgroup that lost substantial sums. Whereas 31 percent reported losing under NZ\$500, six percent indicated losses of NZ\$5,000 or more. As expected, these losses are greater than those found for problem gamblers in the NPS. In large part this is probably a consequence of the client group having more severe gambling problems. However, it is also likely that clients give more honest accounts of their gambling losses.

It will be recalled that approximately a quarter of regular non-casino gaming machine players and a fifth of track betters were found to currently experience gambling problems. This is a much higher percentage than was evident for other forms of gambling. Consequently, problem gamblers will account for a greater proportion of expenditure on these two gambling activities. The Australian Productivity Commission

examined this topic in greater detail and estimated that, in Australia, 42 percent of gaming machine and 33 percent of wagering expenditure (primarily track betting) was accounted for by problem gamblers. Corresponding percentages for lotteries (6%) and casino table games (11%) were much lower. Similar analyses have not been undertaken for New Zealand but are likely to be similar.

Whereas gambling expenditure, on average, represents less than one percent of total household income for non-problem gamblers, for most problem gamblers the percentage is much greater. Again this has not been determined for New Zealand. However, the Productivity Commission conservatively estimated that the average percentage for serious problem gamblers was over 20 percent. This high ratio of expenditure to income leads problem gamblers to divert expenditure from other areas. Productivity Commission client and household surveys found that drawing on savings and foregoing expenditure on personal items, groceries or small household items, holidays, entertainment, dining out and alcohol were most common. In addition, bills were often not paid or delayed. Selling assets, drawing on credit cards, borrowing money and resorting to criminal activities were also mentioned as ways of increasing revenue to gamble and pay gambling debts. An escalation of gambling in an attempt to win back losses is another common response, which typically results in further losses.

From the NPS, it was estimated that over 100,000 New Zealand adults gambled more than they intended during the six months prior to the survey. During this period, 23,000 had wanted to stop gambling but did not feel that they could, 14,000 borrowed from household money to gamble or pay gambling debts, 19,000 borrowed from a spouse or partner, 10,000 borrowed from other relatives and 11,000 borrowed from credit cards. It will be recalled that the point prevalence estimate for current probable pathological and problem gambling was 1.3 percent of the adult population, approximately 35,000 people. While only approximately 1,000 people were estimated to have not paid back money due to gambling in the past six months, approximately 6,000 were estimated to have done so at some time. Given the small sample sizes for some of these findings and large relative sampling error, they should be treated with caution.

Although portrayed as a progressive disorder that typically leads to financial ruin including the loss of savings, family home and bankruptcy, it appears that most problem gamblers reach a crisis or turning point prior to complete financial ruin. This may result in a cessation or reduction of their gambling problems. As mentioned earlier, some of these people stop gambling whereas others apparently gamble in a non-problematic way. However, a substantial proportion has varying numbers of relapses, with further adverse financial consequences. Information on this topic is incomplete and further research is required.

### **Interpersonal impacts**

Part of the reason why many problem gamblers avoid financial ruin is that at least part of their financial burden is passed on to other people in their social networks or to other members of society. In the preceding section reference was made to people surveyed in the NPS who acknowledged having 'borrowed' from household money, partners and relatives. A variety of estimates of the average number of people adversely affected by each problem gambler have been proposed. From the Productivity Commission survey of problem gambling clients, it was concluded that the average number of people by each serious problem gambler in Australia was seven. Family members are most often

affected and these effects are usually more severe than for other people in problem gamblers' social networks. These adverse effects on other people go much wider than financial considerations. From the NPS, only about one-in-ten current problem gamblers lived alone, a similar percentage to that for adults in general.

This 'multiplier' effect is important when assessing the wider financial and social costs of problem gambling. While only about one to two percent of adult New Zealanders appear to currently experience significant gambling problems, if seven people on average are additionally affected for each serious problem gambler, the percentage under consideration probably expands to at least seven percent. This does not include the additional adverse impacts that result from gambling and related behaviour on the part of people who have less serious problems or who have some difficulties but do not meet the full criteria for problem gambling.

If lifetime prevalence is considered rather than past six month prevalence, the number of people affected is likely to be at least double the 'current' estimates. In this regard it is of note that, from the NPS Phase Two survey, it was estimated that the following percentages of adults who did not themselves have a gambling problem considered that members of their immediate family had currently or in the past had a problem with gambling:

- Father 3%
- Mother 3%
- Brother 5%
- Sister 0%
- Spouse 2%.

It was estimated that a further 11 percent had a cousin or other relative with a gambling problem and ten percent a friend or other significant person in their life.

Financial hardship for the spouses and children of problem gamblers is commonplace. In extreme cases this can lead to reduced access to basic necessities including adequate housing, warmth and food. Continued lying and deceit also undermine trust. These and related stresses give rise to arguments and relationship breakups. Overseas research has also documented links between problem gambling and increased risk for violence towards other family members, particularly partners and children. Other research outside New Zealand has also found that the family members of serious problem gamblers have elevated rates of a range of physical ill health and mental disorders, especially those that are strongly linked to chronic stress. Depression and anxiety-related mental disorders appear to be particularly common and, as with problem gamblers, their partners have also been found to have high levels of suicidal thoughts and attempts. A lack of security and trust in others has been noted in the children of problem gamblers and they also appear to be at higher risk for health-threatening behaviours such as smoking and drug misuse.

In the NZGS prison studies, prisoners were asked about the effects that other peoples' gambling had on them. Over a half of the prisoners said that they considered that a member of their family or someone else important in their life had had a gambling problem. Having a spouse or partner with a gambling problem was the form of relationship most often associated with adverse impacts. For male prisoners this was

followed in descending rank order by fathers, a friend or someone else important in their life, mothers, brothers, sisters and other relatives. For female prisoners, the order was mothers, friend or someone else important in their life, sisters, fathers, other relatives and brothers. A very wide variety of impacts were mentioned. Those most often mentioned included:

- Loss of household or personal money
- Arguments, anger and violence
- Neglect of family or negative effect on their own relationship
- Contributed to the development of their own gambling problems.

With respect to contributing to the development of their own gambling problems, male prisoners most often mentioned this in relation to their fathers or mothers. In the case of the women prisoners, while they also often mentioned their mothers in this regard, spouses and sisters ranked higher, and mothers ranked higher than fathers.

Further research is required using a wider variety of problem and non-problem gambler samples to investigate the various impacts that problem gambling has on the lives of other people in problem gamblers' families and wider social networks. This research should include more detailed examination of the way in which problem gamblers influence the development of similar problems in other people.

One of the most consistent findings related to risk factors for problem gamblers is that people who report having a parent or parents with problems significantly more often experience problems themselves. From Phase Two of the NPS and the earlier 1991NS, it was found that people with current gambling problems were approximately twice as likely to report that their father or mother had similar problems.

The finding of an elevated risk for problem gambling among the adult children of problem gamblers suggests that there is an intergenerational multiplier effect. While this requires further investigation by assessing the children of identified problem gamblers and non-problem gamblers and following them over time, it appears likely that each new case of problem gambling has the potential to impact on future generations. Phase Two of the NPS found that most people are first introduced to gambling by their parents. It also found that problem gamblers report higher levels of gambling in their family of origin than non-problem gamblers. While it is probable that social learning is important in the development of problem gambling, future research should also consider the possibility that genetic factors play a role. Given high levels of co-morbidity, especially for depression and substance dependence, these disorders should also be examined among both the parents and offspring of problem gamblers.

In addition to the intergenerational transmission of problem gambling, it is likely that many of the other adverse impacts of problem gambling on the children of problem gamblers, for example child abuse and neglect and a lack of trust in relationships with significant others, will also have long-term effects. Again, this is an aspect of problem gambling that appears to have been little investigated.

## **Impacts on study and work performance**

From the NPS it was estimated that approximately five thousand adult New Zealanders had lost time from study or work during the past six months because of gambling. Six percent of problem gamblers acknowledged having at least sometimes lost time from study or work during this period and 12 percent were estimated to have done so at some time during their lives. Much higher rates of disruption to education and work performance have been found in clinical samples overseas. For example, the Australian Productivity Commission client survey found that a half of problem gamblers receiving counselling said they had lost time from work or study during the past 12 months.

In addition to disruption to work and study, smaller percentages of problem gamblers leave their jobs or terminate their course of study as a result of gambling problems. In some cases people are dismissed from their jobs due to gambling-related absenteeism or crime. The extent of these consequences of problem gambling is not known for New Zealand. This information is required for adequate quantification of the financial costs of problem gambling to society.

## **Criminal and legal impacts**

Some instances of gambling related crime have gained nation-wide attention because of their magnitude or the social prominence of the offender. This is especially the case with fraud or embezzlement that has involved millions of dollars and affected the life savings of large numbers of people. However, the great majority of gambling-related crime probably goes undetected or does not lead to prosecution. Nevertheless, the NZGS prison studies found that gambling-related offending was common among recently sentenced prisoners. Fifteen percent of male prisoners and 26 percent of females reported having committed a crime to gamble or to pay gambling debts. The great majority of these prisoners were problem gamblers and the extent of their gambling-related offending was strongly associated with the severity of their gambling problems. Nine percent of males and 19 percent of females said they had been convicted for an offence of this type.

Rates of offending as high or higher than those found in the prison studies have been reported for problem gamblers in mutual help group and clinical settings. As in the prison studies, these crimes are rarely violent in nature. For New Zealand women prisoners, fraud was the gambling-related offence mentioned most often, followed by burglary, shoplifting, supplying or selling illicit drugs, theft and robbery. For men, burglary was mentioned most often, followed by theft, fraud and robbery. Prisoners with more severe gambling problems were much more likely to report crimes of this type than those with less serious problems. It appears that approximately six percent of recently sentenced male prisoners and ten percent of females are in prison at any one time for gambling-related or mainly gambling related offences.

Very few problem or non-problem gamblers in the 1991 and 1999 national surveys mentioned having committed gambling-related offending. While this is likely to be a consequence of their lower levels of problem gambling severity compared to those of problem gamblers in prison and treatment settings, it is also probable that this is an aspect of problem gambling that is significantly under-reported in community surveys.

Apart from the financial cost of gambling-related crime to the organisations and individuals directly involved, there are often financial and other costs for problem gamblers who are convicted, as well as for their families. Victims of crime also typically experience a variety of adverse impacts that extend beyond financial loss. In addition, gambling-related crime such as insurance fraud and shoplifting is probably reflected in higher insurance premiums and consumer goods prices that affect most members of the community. The extent of these impacts is unknown. More tangible are the costs of policing, prosecution, sentencing and corrections. However, again, these impacts have not been costed for New Zealand.

## **Service provision**

Many of the financial costs of problem gambling are in part transferred to family members or other people in problem gamblers' social networks. However, as mentioned in the previous section, members of wider society also carry costs generally by way of crime, non-payment of debts, work absenteeism and non-completion of courses of study. These costs are reflected in higher prices for insurance premiums and a variety of goods and services. An example is provided by the case of a problem gambler who spent very large sums from trust accounts held by his law firm. For many years subsequently, New Zealand lawyers contributed to a fidelity fund to repay the money that was stolen. The impact of this on legal fees nation-wide is not known.

The costs borne by the Police, Courts and Department of Corrections have also been mentioned. These costs result in higher taxation and opportunity costs by diverting resources from dealing with other types of offending. It has been noted that problem gamblers have high rates of alcohol problems and depression. Alcohol misuse and depression, like problem gambling per se, have a wide variety of financial and other costs to general society. Given that the family members of problem gamblers also have elevated rates of a variety of physical and mental health problems, there are additional indirect costs for these people and wider society. At this stage it is not clear to what extent problem gambling leads to alcohol problems and ill-health rather than accompanies them. This requires further study.

**Currently, the cost of specialist problem gambling services is met by the gaming industry by way of 'voluntary' contributions and levies. However, from the NZGS studies it appears that problem gamblers more often seek help from other health, mental health and social services. These services are in large part financed from general taxation or by voluntary sector organisations from other sources. Many problem gamblers and their families face serious financial problems. It is likely that a significant number receive welfare benefits and housing assistance from the state.**

From the foregoing it is evident that the financial and other costs of problem gambling are wide-ranging and have ripple effects throughout society. While the extent of these various costs is unclear and have not been quantified, they are likely to be significant.

The Productivity Commission points out that in Australia the various costs generated by problem gambling may be more than offset by the very large amount of taxation that they contribute as a consequence of their disproportionate share of gambling expenditure. This may or may not be the case in New Zealand. However, this additional

taxation revenue does not compensate for the more immediate losses to family members, friends, businesses and voluntary sector organisations.

## **Have gambling problems increased in New Zealand?**

**This is probably the question of most interest to policy-makers, treatment providers and other stakeholders with an interest in gambling and problem gambling. Unfortunately, while a great deal of relevant information is available, its interpretation is not straightforward and a definitive answer cannot be provided to this question.**

Gambling availability and expenditure have increased appreciably since the 1991 national survey was conducted. Most of this increased expenditure has been on non-casino gaming machines and casino gaming - forms of gambling that have been shown in the NPS and other studies to be strongly associated with problem gambling. For this and other reasons it was anticipated at the outset of the 1999 NPS that the prevalence of problem gambling would be significantly higher in 1999 than in 1991. As mentioned above, the survey findings were not consistent with this hypothesis. To the contrary, a significantly lower prevalence of problem gambling was found. Specifically, in 1991 it was estimated that between 0.9 and 1.6 percent of adults were currently probable pathological gamblers and a further 1.7 to 2.7 percent were currently problem gamblers with less severe problems. The corresponding 1999 estimates were 0.03 to 0.07 percent and 0.6 to 1.1 percent, somewhat less than half those for 1991. What does this mean? Can it be concluded that gambling problems have declined in the general population?

Earlier it was mentioned that the 1999 NPS found that the proportion of adults who reported engaging in continuous forms of gambling was substantially lower in 1999 than in 1991 (11 versus 18%). This finding was also unexpected given the large increase in the availability of and expenditure on gaming machines, casino games and some additional forms of continuous gambling, and the belief that these increases would result in an expansion of the number of people who participate frequently. As discussed, the contrary finding suggests that higher overall expenditure on these forms does not necessarily lead to or reflect an increase in people in this category. Indeed, the NPS and all five of the most recent North American replication studies found that higher expenditure was associated with a reduction in the proportion of the adult population that gambles weekly or more often.

The finding of a lower percentage of frequent continuous gamblers in 1999 than in 1991 is consistent with the lower problem gambling prevalence estimates. As mentioned, a number of other replication studies have obtained lower rates than earlier baseline surveys. Thus, while it is possible that there has been a reduction in problem gambling prevalence during the 1990s in New Zealand, it is important to note that trends cannot be inferred from just two data points eight years apart. Ideally, repeat surveys using identical methods should be carried out on a regular basis, perhaps every one or two years. Although not published, a third national New Zealand survey was undertaken in 1996. While having a number of methodological shortcomings, the quality of its methodology, response rate and sample size are comparable to, if not better than, those of most problem gambling surveys conducted internationally. The current probable

pathological gambling point prevalence estimate from this survey (0.04%) is similar to that of the NPS (0.05%).

One of the reasons why a series of repeat surveys is required to determine change over time in the population is that each survey involves drawing a sample from the larger population. On a purely chance basis, occasionally a single survey will produce results that do not reflect the true state of the population. In the present instance, it is possible that either the 1991 or 1999 surveys are in this category. It is also possible, but extremely unlikely, that this is the case for both surveys.

It is also important to recognise that the methods used in the 1991 and 1999 national surveys differed in some ways and it is possible that these differences may have influenced the findings. The main reason for the differences in methodology was the concern, in 1999, to conduct a high quality survey and to obtain a response rate in excess of 70 percent. A high response rate means that greater confidence can be placed in survey findings and their generalisation to the adult population. This is because more precise estimates can be obtained and because the likelihood that the sample is non-representative of the population is diminished. The NPS attained a rate of 75 percent, substantially higher than that of the 1991 survey (59%) and previous problem gambling surveys internationally. Other gambling surveys have rarely obtained rates above 60 percent and, in recent years, response rates for a wide variety of social surveys have declined in New Zealand and in other countries.

Official government statistical agencies appear to be the only organisations that have maintained high response rates in national surveys. For this reason, both the NPS and recent Swedish national gaming survey involved government statistical agencies. This is also the reason why recent national health and disability surveys in New Zealand and a number of other countries have been undertaken by these agencies. In Australia and the UK these surveys have included mental health prevalence studies, and Statistics New Zealand has recently been contracted by the Ministry of Health to conduct the first New Zealand survey of this type.

In pilot studies conducted prior to the NPS, to test aspects of the survey methodology, response rates similar to those of the 1991NS and a number of previous problem gambling surveys were obtained. These were deemed to be unsatisfactory and procedures were introduced to increase the response rate. This included sending a letter to households selected for inclusion in the study advising them that they had been chosen at random for an important social survey and that they would be contacted shortly to seek their participation. This letter was signed by the Government Statistician. Additional callbacks were made to contact eligible households and people selected within households for an interview. These procedures were effective in increasing the response rate to over the target of 70 percent in both the final pilot study and the subsequent national survey.

It is not known what effect increasing the response rate had on the number of problem gamblers who were contacted and agreed to take part in the NPS. It has generally been assumed that problem gamblers are less likely than other people to take part in surveys on gambling and that increasing the response rate will increase the number included. To date only two studies, the unpublished 1996 New Zealand national survey and an American survey, have examined this matter. Both initially obtained low response rates and then made additional attempts to contact people who had not previously been

contacted and persuade those who had declined to take part. These efforts greatly increased the response rate but had minimal influence on the prevalence estimates.

A review of North American prevalence surveys also found that fairly consistent results were obtained from studies using different methodologies, measures of problem gambling, and response rates and varying in overall methodological quality (Shaffer, Hall & Vander Bilt, 1997). The initial NPS pilot study, which was more similar to the 1991NS than the NPS in terms of response rate and methodology, also obtained a lower percentage of regular continuous gamblers and problem gamblers than was expected on the basis of the 1991NS. These various findings suggest that methodological differences between the 1991 and 1999 surveys did not appreciably alter the number of problem gamblers who were contacted and agreed to take part. However, it is possible that the letter from the Government Statistician increased the percentage of infrequent gamblers and people with little interest in gambling. If so, this would have reduced the relative proportion of problem gamblers somewhat. On the other hand, the additional call-backs could be expected to increase the number of people who are difficult to contact, including problem gamblers.

These various considerations led the authors of the NPS to conclude that the findings failed to corroborate the hypothesis that prevalence rates would be higher than in 1991. They also noted that while methodological differences between the two studies probably had some influence on the prevalence estimates, in their view these differences were unlikely to account for differences of the magnitude obtained. Nevertheless, they cautioned that the possibility remains that the differences between the estimates were an artefact of methodological differences between the two studies, and that more than two data points are required to determine trends. Thus, while concluding that the 1999 findings did not support the hypothesis of a rise in problem gambling prevalence, these and related considerations meant that they were unable to conclude that they supported the alternative hypothesis, namely that prevalence rates had reduced. The report states:

On the basis of the findings of the 1991 and 1999 surveys alone, it would be premature to conclude that the prevalence of problem and probable pathological gambling has levelled out or declined in New Zealand. However, the findings do suggest that this might be the case and both hypotheses should be addressed in future studies.

The report added:

Irrespective of the effects of using slightly different methodologies in 1991 and 1999, it is considered that the 1999 survey is more robust technically and provides more accurate information about gambling participation and serious problem gambling than the 1991 survey does.

Apart from the higher technical quality of the NPS, including its large sample size and high response rate, the authors noted that the prevalence estimates were almost identical to those of the recent Swedish national survey. This survey was also of high quality and Sweden has similar per capita gambling expenditure to New Zealand. In addition, the rate was similar to that of the most recent (1996) previous New Zealand survey as well as to those of the two Australian states that have per capita gambling expenditure most similar to New Zealand. Prevalence rates for the Australian states and territories with greater expenditure are substantially higher. **For reasons referred to**

**earlier and discussed in greater detail in other NZGS reports, the prevalence estimates from all of these studies should be regarded as conservative.**

## **5. ATTITUDES TOWARDS GAMBLING AND PROBLEM GAMBLING**

The Department of Internal Affairs' national surveys of gambling, conducted in 1985, 1990, 1995 and 2000, asked respondents which forms of gambling, if any, they considered to be socially undesirable. In 1985, just under two-thirds of adults considered that at least one form of gambling was undesirable. In 2000, approximately five-sixths considered at least one form to be undesirable. This finding and findings relating to individual types of gambling suggest that over the period of time surveyed, New Zealanders have become more concerned about the negative social impacts of gambling.

In 2000, over a half of adults considered that 0900 telephone games or competitions, casinos and Internet-based gaming were socially undesirable. Over a third thought likewise with regard to gaming machines and betting on horse or dog races. In the case of casinos, gaming machines and betting on horse and dog races, increased percentages of people expressed concern over time. Smaller percentages indicated that they considered that other forms of gambling were socially undesirable and, in contrast to the three forms just mentioned, attitudes toward these other forms either stayed the same or became slightly more accepting over time.

In 2000, only two percent of adults said that there were any additional forms of gambling that they would like to see in New Zealand. The majority of adults indicated that they did not want additional casinos to be established, that there should be no increase in the number of sports betting organisations and no increase in the number of national lottery agencies. The large majority favoured age restrictions on gambling and just over half indicated that they would like to see a common age restriction for all forms of gambling. The preferred age was 18 years.

The 2000 Departmental survey also found that over three-quarters of adults said that there should be special laws controlling gambling. Slightly less said that in reassessing the regulation of gambling activities, government should be guided by limiting the harm that they can cause people and ensuring the profits fund worthy causes. Over a half said preventing criminal activity was a relevant consideration and over a third mentioned ensuring fairness for players and restricting opportunities to gamble.

Over 90 percent of adult New Zealanders, in both 1995 and 2000, indicated that they were in favour of gambling as a means of fundraising for worthy causes. A half in 1995 and just over a half in 2000 accepted gambling as a sales promotion. While just under a third considered that gambling was acceptable as a business enterprise, over two-thirds accepted profit sharing between a promoter and a worthy cause.

Community representatives were regarded as the most appropriate people to make decisions about the distribution of gambling profits. In 2000, approximately a half of adults favoured this option. A third favoured local councils in this regard, just under a quarter favoured government departments and slightly less considered that people who operate gambling activities should do this.

In 1985, two-thirds of adults either agreed or strongly agreed that "there is a problem with people being heavily involved with gambling in New Zealand." In 2000, 87 percent reported this level of agreement. The most notable change concerned those who strongly agreed with this statement. In 1985, only 19 percent responded in this way. In 2000, 42 percent did. In 1985, 20 percent said they did not know. This dropped to four percent in 2000. **These findings suggest that there has been a steady increase in public awareness about problem gambling and that the large majority of adults currently consider that this is an issue of at least some concern to them.**

In addition to increased awareness of problem gambling, there has also been an increase in the proportion of people who consider that there should be special help for people who want to give up gambling. In 1985 86 percent of adults agreed or strongly agreed that this type of help should be available. This increased to 98 percent in 2000. Most adults (79%) in 2000 were of the view that the gaming industry should pay for special help through a tax or levy. Just over a quarter (27%) said that government should provide money for this purpose. Somewhat less (19%) considered that problem gamblers themselves should cover the cost.

It appears that during the past two decades, people have increasingly distinguished between the various forms of gambling. With respect to activities considered undesirable, it is of interest that those widely available forms most strongly linked to problem gambling in New Zealand (gaming machines, track betting and casino gaming), are also the ones that increasing proportions of adults regard as undesirable. Opinions regarding these forms of gambling are now almost equally divided between people who consider them desirable and undesirable.

The increase in negative attitudes towards some gambling activities may indicate growing awareness of the association of these forms of gambling with gambling problems. It would be useful if future studies asked people in greater detail about their reasons for regarding particular forms of gambling as desirable and undesirable. It would also be of interest to determine to what extent negative attitudes towards different forms of gambling are associated with personal experience with them and current levels of involvement. Given the apparent reduction in regular involvement in these and other continuous forms of gambling, it would be helpful to know to what extent attitudinal shifts of this type translate into behaviour change. This information could be helpful in the design of public education and problem gambling prevention programmes.

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## APPENDIX

## **The political context of the NZGS and criticisms of aspects of its methodology and findings**

Given the potential implications of problem gambling research for public policy and the gaming industry, such research typically comes under careful scrutiny and is challenged by stakeholder groups. In other words, the context within which this research takes place is highly charged politically. One commentator has recently referred to researchers being "caught in the crossfire" between strong rival pro- and anti-gambling factions. Much of the research is funded by the gaming industry and government agencies and is not published in peer-reviewed reports or journals. Irrespective of the reality of the situation, researchers are often assumed to be either pro- or anti-gambling and accused of bias. This is not a unique situation. It has also applied to research on topics such as tobacco, alcohol and the effects of animal fats on health. At the present time a major review of gaming is underway in New Zealand and the NZGS reports provide information that will be important in informing the review team's deliberations. Consequently, it is expected that the research findings will be contested and debated by major stakeholders.

As mentioned earlier, the NZGS was funded by undistributed profits from the Lotteries Commission and money provided to the Problem Gambling Committee from major sectors of the gaming industry. However, the research contract was with the Crown through the Department of Internal Affairs and, in the case of the NPS, also involved the Department of Statistics as a member of the research consortium. The research was independently audited at various stages and the NPS reports were reviewed by independent academic specialists not involved in the research, as well as by Department of Statistics methodologists and statisticians. While these reviewers and Department of Internal Affairs staff provided comment on drafts of the NZGS reports, the research director's contract stipulates that he has editorial autonomy. This autonomy was exercised.

The 1991NS findings were strongly challenged by the gaming industry. Aspects of the methodology were contested and it was claimed that the problem gambling prevalence estimates were greatly inflated. In large part this was attributed to the assertion that the main measure of problem gambling used in the survey, a revised version of the South Oaks Gambling Screen (SOGS-R), incorrectly classified many people without problems as problem gamblers. Notwithstanding these criticisms, the research played a part in government's decision to ensure that funding was provided to assist problem gamblers by way of a national helpline and counselling services.

In contrast to the situation with the 1991 survey, little public response to the 1999 NPS findings and other NZGS reports has come from the gaming industry. However, there has been concerted criticism from some treatment providers, most notably from the Compulsive Gambling Society. The main thrust of this criticism is that the methodology of two major components of the NZGS research programme is flawed and that their findings downplay the magnitude of problem gambling. Problems are seen as being downplayed because the prevalence estimates are lower than they were in 1991 and because it is concluded that many problem gamblers eventually overcome their problems. Criticism has not been directed at the prison studies that found very high rates of problem gambling and gambling-related offending.

The major critique of the NPS is outlined in an anonymously authored report published in 2000 by the Gambling Studies Institute of New Zealand (GSINZ) (2000). The report commences by referring to the importance of the study findings to the gaming review and asserts that the Department of Internal Affairs, in a discussion document related to the review, inappropriately presents aspects of the findings as "facts". Concern is expressed that the NZGS findings will have a major influence on the funding of treatment services, the need for harm reduction strategies, health promotion and gaming regulation. The critique then proceeds with an outline of reasons why the authors consider that some of the NPS findings are invalid and why they believe that there "may be 50,000 pathological gamblers and another 75,000 sub-clinical problem gamblers" in New Zealand.

Before examining the major criticisms and arguments outlined in the Institute report, it should be noted that the prevalence estimates from the NPS were 0.3 to 0.7 percent for current probable pathological gamblers and 0.6 to 1.1 percent for current problem gamblers. These percentages correspond to 7,300 - 20,100 and 15,400 - 30,700 people respectively. These estimates do not take account of the much higher problem gambling prevalence in prisons (based on the prison survey it is estimated that approximately 1,000 prisoners are problem gamblers, most with particularly serious problems) and perhaps some other institutional settings. They also exclude problem gamblers under the age of 18 years. It is expected, but yet to be determined, that people in their mid-teens will also have a high prevalence of problem gambling. **As discussed, for various reasons outlined in greater detail in the NPS report and in other NZGS reports, it is argued that these estimates are probably conservative and possibly highly conservative. This is particularly likely to be the case for people with serious gambling problems. This likely under-representation is not unique to the NPS but is inherent in general population surveys of problem gambling.**

There is no definitive way to determine exactly how many problem gamblers there are in the general population. While it is widely considered that prevalence surveys provide the most accurate means to assess the extent of problem gambling and that, the better the quality of the survey, the more likely it is to yield valid estimates, survey findings should be augmented by other sources of information. The upper confidence limits of the NPS indicate that there could be approximately 20,000 probable pathological gamblers and 31,000 problem gamblers in the adult population. If estimates for those in prisons and under the age of 18 years are added, there might be a further 5,000 or so people with significant gambling problems. While the degree of under-estimation in the NPS is uncertain, it is not inconceivable that it could be half the actual rate. If so, it is possible that there could be over 40,000 people with very serious gambling problems and 60,000 people with less severe yet still significant gambling problems. These figures are not far short of the NZIGS guesstimates of 50,000 and 75,000. However, they are based on upper limit projections. If the lower confidence band or mid-point was used for extrapolation then the numbers would be smaller.

The considerations outlined in the previous paragraph highlight the degree of uncertainty that there is regarding the number of problem gamblers in New Zealand, despite large-scale epidemiological studies having been undertaken. Given this uncertainty and considering the serious adverse consequences of problem gambling, the author agrees with the Compulsive Gambling Society (CGS) that it would be prudent to assume that the prevalence is likely to be higher than the NPS estimates. This is also the position taken by the Australian Productivity Commission that concluded that the number of

people with serious problems may well be double that identified in the Australian national survey.

It should also be noted that the NZGS reports involve over 1,000 pages of text. In summarising findings in other documents, it is almost inevitable that they will be portrayed in black and white. In other words, the many shades of grey, which include careful qualifications of the findings and cautionary comments, will tend to be lost. It is important that in drawing on the NZGS reports to inform policy decisions that these qualifying statements are taken account of and that the findings are considered alongside those of other studies and reports, including the NZIGS report under discussion.

A major reason why the NZIGS challenged the NPS survey methodology and findings was that, although there has been a substantial increase in the availability of and expenditure on gaming machines and casino gaming since the 1991 survey, the 1999 prevalence estimates were lower. The critique claimed that these findings "appeared counter-intuitive" to the experience of treatment providers. As mentioned, the NPS principal investigators also expected that prevalence rates would be higher for this reason and were surprised at the contrary findings. Possible reasons why a reduction could occur in this situation, for example fewer people gambling regularly on continuous forms of gambling, were discussed previously. However, as indicated, the NPS authors did not conclude that they had demonstrated a reduction in prevalence. Rather, as mentioned, the findings raised the possibility that this might be the case and suggested that further research was needed to clarify the matter. This said, it is of interest that another possibility was not considered. Rather than challenge the methodology of what is probably the most sound problem gambling prevalence survey conducted to date internationally, perhaps the less robust 1991 survey was in error? However, with respect to the earlier study, the NZIGS report states "the 1991 study may have been more accurate."

Earlier, it was shown that helpline calls and presentations to specialist problem gambling counselling services have risen steadily since they commenced. This reality could be expected to lead treatment providers to believe that prevalence rates had similarly increased. However, while consultation rates would ordinarily be expected to rise if the number of people with problems was increasing, other factors can account for increased presentations, even if prevalence is remaining constant or declining. For example, when services are first established, a sharp rise in presentations is the usual pattern. This is largely because of a 'backlog' of people with problems seeking help. Advertising, increased awareness of problem gambling, greater willingness to seek help and increases in the services available and changes to make them more accessible to under-served sectors of the population are among the factors that can help sustain rising presentation rates. However, in the long run, once services are well established, it would be expected that a reduction in prevalence would be reflected in reduced presentations, especially first presentations.

The authors of the NZIGS report maintained that the finding of a lower prevalence in 1999 was anomalous in that in other countries increased gambling accessibility had been paralleled by "growth in the incidence of problem gambling". They also claimed that:

Comparisons made between New Zealand prevalence rates as identified by the study are only a fraction of their overseas counterparts. Examples of higher but similar populations suggested by the authors of the study are not comparable based upon numbers of gambling machines while those populations with comparable machines have prevalence rates three or more times that found by the recent study.

Before discussing this aspect of the critique, it should be noted that, to date, there has been no general population study of the incidence of problem gambling, although research of this type is well overdue. Research has focussed on prevalence, the proportion of people in the population who either currently experience or, at some time in their lives experienced, gambling problems.

To support the assertion that overseas "research indicates problem gambling increases with accessibility" the NZIGS report cites studies from North America that are also described in NZGS reports. As mentioned earlier, state and provincial surveys from the mid-1990s generally had higher prevalence rates than those of earlier surveys. Given that gambling availability increased throughout North America during this period, this finding is in keeping with the view that increased availability is associated with increased prevalence. However, other factors could explain the pattern of findings. For example, more recent studies may have been undertaken in jurisdictions with higher levels of problem gambling, both currently and in the past. For this and other reasons, a more accurate indicator of change over time is provided by conducting repeat (replication) surveys in the same jurisdiction, where information is also available on changes in gambling availability and expenditure.

The NZIGS report does cite North American replication studies and conclusions reached in NZGS reports concerning these studies. As mentioned, a number of the replication studies found that prevalence changed little or declined. At the time that Volumes One to Three of the NZGS were prepared, it was concluded that "where the interval between studies was greater than three years, there appears to be some support for the view that problem gambling prevalence has increased over time." More recently, additional studies have been completed. As mentioned, all found reduced frequent gambling participation despite increases in overall gambling expenditure. With the addition of these studies, the number showing prevalence decreases is similar to the number showing increases.

New Zealand is the only jurisdiction where three replication surveys have been conducted. The 1996 survey is not mentioned in the NZIGS report. As indicated earlier, the 1996 and 1999 surveys obtained similar prevalence estimates and both were lower than the 1991 estimate. Again, as mentioned, Australia is the only other country to have conducted repeat surveys at the national level, albeit that the baseline survey was only quasi-national in scope (confined to four major metropolitan areas). The 1991 'four city' current probable pathological gambling estimate was 6.6 percent; the recent Productivity Commission survey estimate was 2.1 percent. Although the two Australian studies used similar problem gambling measures, there are a variety of methodological considerations that call for caution in comparing the findings from these surveys. However, the Australian and New Zealand national studies, taken in conjunction with all of the North American replications, mean that the New Zealand findings are not anomalous or unique as claimed in the NZIGS report.

What this body of replication research means is unclear at this stage. Why some populations have more problems with rising gambling availability while others have less remains an unanswered question. However, it would now be helpful to consider factors other than the availability of gambling that influence the development and maintenance of gambling problems. The most recent North American replication studies suggest that the availability of comprehensive treatment and related services may play a moderating role. In part, this might be mediated by way of greater public awareness of problem gambling and a reduction in the percentage of the population that engages in high risk frequent gambling. While some sectors of the population, for example women, more often experience problems than in the past, other sectors previously at high risk currently appear to experience relatively fewer problems. The reliability of these findings and assessment of the extent to which they reflect a reduction in incidence (new cases arising), rather than premature deaths and problem remission through treatment and self-recovery, requires further research.

It should be noted that if the sorts of factors suggested in the previous paragraph are acting to counteract the effects of participation in high risk forms of gambling, it does not follow that sole reliance should be placed on their identification and amplification. In the event that rates of problem gambling are stabilising or declining in some populations (and this has yet to be established in New Zealand), this does not mean that problem gambling is insignificant. Neither does it mean that counteracting factors will prevent prevalence increases in response to future increases in exposure to high-risk forms of gambling. Sound public health policy includes strategies designed both to reduce exposure to agents that give rise to illness and disability and to strengthen the resistance of individuals and communities to exposure.

The NZIGS report claimed that the comparison of the NPS prevalence estimates with Swedish, Tasmanian and Western Australian rates was inappropriate and misleading. As mentioned earlier, the comparison with Sweden (Rönnerberg, Volberg & Abbott et al, 1999) was made because, like the New Zealand survey, the Swedish survey is national in scope, is of high quality and was also undertaken by a government statistical agency. Additionally, like New Zealand, Sweden has a wide mix of gambling products available, has experienced considerable growth in gambling expenditure in recent years and has similar per capita expenditure to New Zealand. The two Australian studies were chosen because they are the states in that country that have the closest per capita gambling expenditure to New Zealand, albeit that in both cases they are higher. The NZIGS criticism rests on the argument that all three of these jurisdictions have less gaming machines per capita than New Zealand and that this is the form of gambling most strongly linked to problem gambling. The report maintains that more appropriate comparisons would be with states with high numbers of machines or with Australia as a whole.

Given the strong link between gaming machine involvement and problem gambling in the NZGS surveys and client presentations, this argument needs to be considered carefully. Before doing so, however, it should be recalled that research conducted in New Zealand and elsewhere has also found strong links between problem gambling and some other forms of continuous gambling. The NZIGS report acknowledges that high problem gambling prevalence rates have been obtained in a number of jurisdictions that do not have large numbers of gaming machines of the type that are common in New Zealand and Australia. This included New Zealand in 1991. It will also be recalled that the NPS found that while one-in-four regular non-casino gaming machine players were

problem gamblers, one-in-five regular track betters were also in this category. Furthermore, both Australian client data and the Longitudinal Survey findings suggest that track betters generally have problems of longer duration than do their gaming machine counterparts. Prevalence, as mentioned earlier, is determined both by the number of new cases and the duration of problems once they arise.

The Australian Productivity Commission (1999) examined both total non-lottery gambling expenditure and the number of gaming machines per capita in each state and territory in relation to problem gambling prevalence. To examine the argument put forward in the NZIGS report, Figure Five includes comparable data for New Zealand at the time of the 1999 survey. From this presentation, it is evident that New Zealand is placed where it would be expected based on its adult per capita expenditure on continuous forms of gambling, number of gaming machines, and adult per capita expenditure on gaming machines.

Figure 5A shows the relationship between the number of gaming machines (both casino and non-casino) per 1,000 adults and the corresponding average adult expenditure on gaming machines for New Zealand and Australian states and territories. The Australian data comes from the Productivity Commission report. The New Zealand data come from the Department of Internal Affairs. For both countries, the information relates to the time when their respective national prevalence surveys were conducted. In early 1999, there were 5.5 gaming machines in New Zealand per 1000 adults aged 18 years and over. During the preceding 12 months, expenditure on non-casino gaming machines was NZ\$292 million. Casino gaming machine expenditure was estimated to be six-tenths of total casino expenditure for that period, a total of NZ\$147 million. This yields an average of NZ\$162.5 per adult on casino and non-casino gaming machines. In 5A, 5B and 5C both New Zealand dollars and a conversion to Australian dollars are provided for New Zealand adult per capita expenditure.

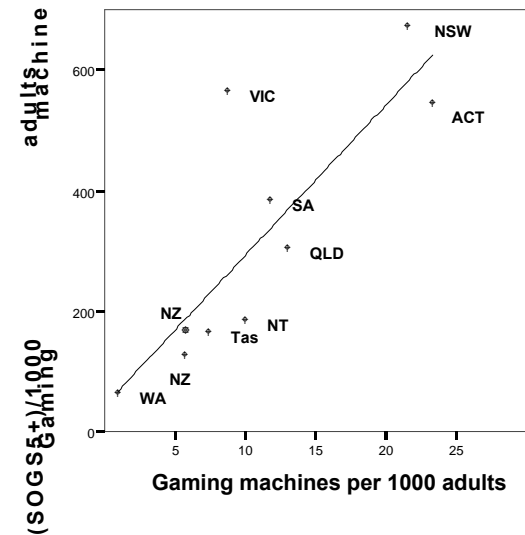
From 5A it is evident that there is a strong relationship between the availability of gaming machines (measured as gaming machines per 1,000 adults) and average per capita expenditure on this form of gambling. This means, among other things, that either measure can generally be used a proxy for the other. It is of interest that Victoria is an exception in this regard. That state has approximately double the expenditure that would be expected for the number of machines. In other words, in Victoria, expenditure per machine is higher than in New Zealand and other parts of Australia. This may reflect constraints on the number of machines in these jurisdictions relative to demand or their strategic placement to maximise returns on existing machines. In Victoria there is a binding cap and other restrictions on machine numbers.

Figure 5B shows the relationship between the number of problem gamblers and gaming machines per 1,000 adults for each jurisdiction. Both the Australian and New Zealand national surveys from which the problem gambling prevalence estimates were derived used a cut-off score of five on a current version of the SOGS-R to define problem gamblers. In other words, they relate to current probable pathological gamblers. While showing a relationship between the number of machines per capita and current problem gambling prevalence, the relationship is not linear. Beyond seven or eight machines per 1,000 adults, there appears to be little difference between jurisdictions with respect to prevalence. This suggests that problem gambling rates in Australia level off beyond this level of availability.

Expenditure  
per adult  
machine

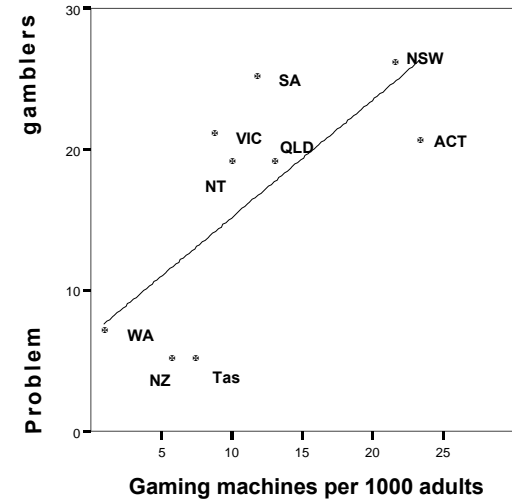
**Figure 5: Gaming Machine Numbers and Expenditure and Continuous Gambling Expenditure in Relation to Problem Gambling Prevalence in Australasian Jurisdictions**

**5A: Average Gaming Machine Expenditure in Relation to Gaming Machines per 1000 Adults**

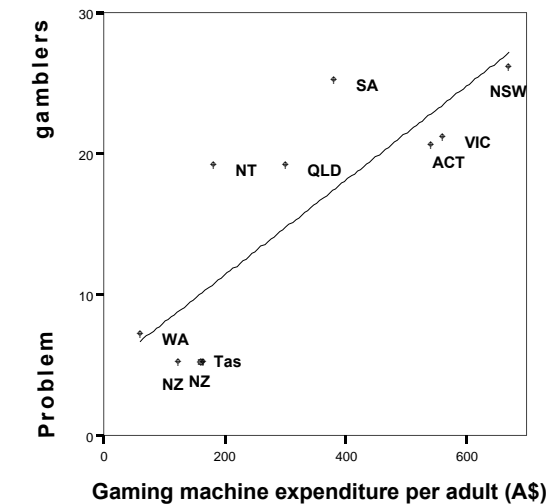


(SOGS+) / 1000

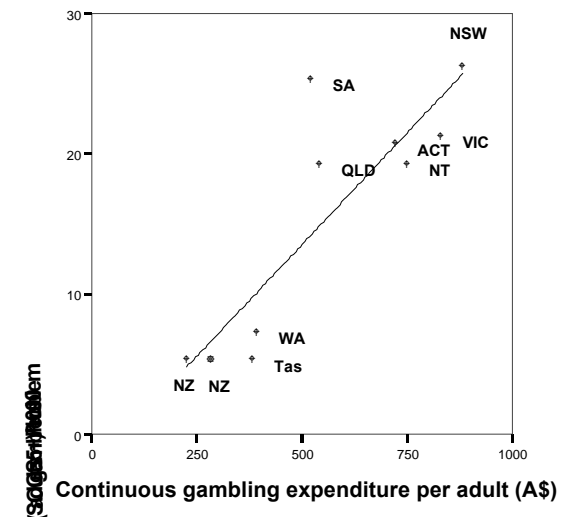
**5B: Problem Gamblers per 1000 Adults and the Number of Gaming Machines per 1000 Adults by Jurisdiction**



**5C: Problem Gamblers per 1000 Adults and Average Expenditure on Gaming Machines by Jurisdiction**



**5D: Problem Gamblers per 1000 Adults and Average Expenditure on Major Forms of Continuous Gambling by Jurisdiction**



The relationship between the number of problem gamblers and gaming machine expenditure per 1,000 adults is shown in 5C. As expected, given the close relationship between machine numbers and expenditure evident in 5A the results are similar to those of 5B.

Figure 5D shows the relationship between expenditure on major forms of continuous gambling (machines, wagering and casino gaming other than machines) and problem gambling prevalence. Again, the pattern is similar to that for gaming machine numbers and expenditure in relation to problem gambling.

The NZIGS report claims:

Australia has 21% of the high efficiency gambling machines in the world, with New Zealand rapidly approaching its figures per capita.

Comparisons should be made with the states that have similar numbers of machines - Tasmania had just 1,324 machines or about half per capita of New Zealand at the time while Western Australia has no gambling machines outside the relative few at its only casino (Burswood). More comparable States based on access to the most problematic gambling mode (gambling machines) may have been Victoria (2.14% probable pathological gamblers), ACT (2.06%), or even Northern Territory (1.89%).

From the information in Figure Five, it is evident that the NZIGS report incorrectly claims that New Zealand is similar to Australia and states such as Victoria with respect to the availability of gaming machines. In 1999 there were about 174,000 non-casino gaming machines for an Australian adult population of approximately 14 million, i.e. about one machine for every 80 adults. At the time of the 1999 survey, there were approximately 13,500 non-casino gaming machines in New Zealand, about one machine for every 200 New Zealand adults. Not only did New Zealand have far fewer machines per adult in 1999, mention was not made of the fact that relative to Australia, New Zealand has a low limit on the number of machines per venue, a low limit on stakes and low prizes. While not evaluated, these are all factors that may have some impact on the problem-generating capacity of gaming machines.

The NZIGS assertion that Tasmania had half as many non-casino gaming machines per capita than New Zealand in 1999 is incorrect. In 1999 official figures indicate that there were 1,393 machines in that state for 348,000 adults, approximately one for every 250 people. While slightly less than New Zealand's one per 200, this does not take into account the proportionately larger number of casino gaming machines in Tasmania. These machines are located in casinos sited in the state's two major cities where the large majority of the population resides. When casino machines are included, as is evident in Figure Five, Tasmania has more machines per capita than New Zealand. Although the NZIGS report is correct in noting that Western Australia has no non-casino gaming machines, the large majority of Western Australians live in Perth, which has long had a casino with gaming machines. Furthermore, that state has higher per capita gambling expenditure than New Zealand, including high expenditure in the casino and on track betting. For these reasons it is concluded that comparison of these states with New Zealand was reasonably appropriate in 1999. Furthermore, the claim that comparison should have been with other states and Australia as a whole is not based on fact.

Although, contrary to NZIGS assertion that New Zealand is similar to Australia and states and territories with the most machines per capita, there is some justification for the claim that New Zealand is catching up with where Australia was in 1999. In early 1999 there were about 13,500 machines in New Zealand. Currently there are approximately 18,700.

**In short it is concluded, as stated in the NPS, that the Australian findings increase our confidence in the validity of the 1999 New Zealand prevalence estimates. However, these findings also raise the possibility that problem gambling prevalence rates may rise in New Zealand if it continues to follow the lead of most Australian states with respect to gaming machine availability.**

Apart from the lower prevalence rates, some other NPS findings were of concern to the authors of the NZIGS and led them to question the validity of the survey. This included the apparent shift from 1991 to 1999 in the sociodemographic groups most at risk for problem gambling. Groups selected for discussion included migrants, Asians, young adults and unemployed people.

The NZIGS report claimed that "migrants were found by the study to likely have no current pathological gamblers, a finding the Society has found quite to the contrary." The first part of this statement is factually incorrect. Migrants, defined as people born outside New Zealand, were actually found to have higher rates of current probable pathological gambling than non-migrants. The estimate for recent migrants was almost double that for people born in New Zealand. Furthermore, a subgroup of migrants, namely those born outside Europe, Australia or North America, appeared to be at particularly high risk, with a rate of current probable pathological gambling more than three times that of remainder of the adult population. Rather than being to "the contrary", this finding appears to be in keeping with the observations and beliefs of "the Society" (presumably the Compulsive Gambling Society).

The NZIGS report's statement that "the 1999 study found no Asians met the probable pathological gambling criteria (although noted that the sampling error exceeded 50% and/or less than 10 people participated in the survey)" is correct. However, no mention was made of the finding that Asians had more than double the European rate for lifetime problem gambling. The reference to sampling errors is important here and in relation to all of the sociodemographic subgroup prevalence estimates. While the total sample was large (6,452), many of the sub-sample sizes were relatively small. This means that the sampling errors are large and that the estimates should be treated with extreme caution. A finding of no serious problem gamblers in a sub-sample of 174 Asians could be expected to occur reasonably often on a purely chance basis, even if the actual prevalence rate was three or four percent.

The NZIGS argument is that Asians were under-sampled relative to the expected proportion based on their representation in the adult population (2.7% relative to 4.4%), and that this at least in part reflected reluctance of Asian problem gamblers to participate in the survey. If so, the subsequent weighting of the sample to bring Asian representation up to the expected proportion would not correct for this omission of problem gamblers. The author agrees that this might be the case. It is also possible, indeed likely, that some Asians with problems (especially current problems) declined to disclose them. This is suggested by the large difference between those who

acknowledged having problems in the past but not currently. The matter is considered in the NPS report where it states:

In the national survey, although a number of Asian lifetime problem gamblers were identified, none scored within the problem or probable pathological range on the current measure. It is most unlikely that there are no Asian problem gamblers in New Zealand. Indeed, counselling and treatment data indicates that Chinese and other Asians do present with gambling problems (Abbott & Volberg, 1999). It appears likely, as Blaszcynski, Huynh and Dumlao et al (1998) suggest, that this population may be reluctant to report problems to an investigator. This could be especially the case with telephone or face-to-face interviews.

If information on this topic is sought from Chinese or other Asian communities, alternative approaches to that used in the national survey should be considered. One option is that employed recently by Abbott et al (1999) to study mental disorder and adjustment among Chinese migrants. This survey was preceded by lengthy consultation with Chinese community leaders, health professionals and community organisations and coverage in the Chinese media. It also used both English and Chinese versions of the questionnaire and screening measure. The major shortcoming of alternative approaches is that it is very difficult to attain a representative sample. Consequently, the ability to generalise findings to the wider population is compromised.

The failure to identify current Asian problem gamblers in the national survey is a further reason why the overall prevalence estimates are likely to be conservative, more so if Asian rates are appreciably higher than the national averages.

In the NPS report, the last paragraph was in bold for emphasis. The NZIGS critique made no reference to this comment or other discussion of this topic in other NZGS publications. This omission implies disagreement when there is, in fact, concordance.

Young people, those aged 18 to 24 years, had the second lowest prevalence rate of the various age categories considered in the NPS. This finding was questioned in the NZIGS report on the grounds that it differed from the findings of the 1991 national survey and the more recent Australian Productivity Commission survey. As mentioned, in the latter survey, youth was the only clear-cut sociodemographic risk identified, with people aged 25 years and under having approximately double the rate of other adults. The NZIGS report correctly pointed out that this group was also under-represented in the sample (7.2% compared with 13.5% in the total population) and argued that if problem gamblers avoided participation in the survey, this could be reflected in this under-representation. As with Asians, this is a distinct possibility. However, it is important to appreciate that this age group is almost invariably under-represented in general population surveys and a major reason for this is simply that relatively more live in larger households. In the NPS one person was selected at random per household contacted. However, people in this age category are also more difficult to contact and they may more often decline participation. These latter reasons could, in part, relate to problem gambling. If this is the case, subsequent weighting of the sample would not correct it.

The NZGIS discussion of young adult representation was in the context of suggesting that the relatively lower representation, which was presumed to be in part due to problem gamblers declining to participate, might help account for the lower 1999

prevalence estimates. However, this line of reasoning is at least somewhat compromised when it is noted that young adult representation was also low in 1991 (though not to the same degree as in 1991), as it is in virtually every general population survey undertaken in New Zealand.

Unemployed people were the other previous high-risk group that was not in this category in 1999. However, this was only the case with respect to current probable pathological and problem gambling, not with respect to lifetime rates which were more than double those of other adults. This finding is consistent with the possibility of a reduction in problems over time in this sector of the population.

In addition to having lower prevalence rates than in the 1991 survey, both young adults and unemployed people also reported lower gambling expenditure. While both could be affected by people with current gambling problems declining to be interviewed, despite the very high expenditure of problem gamblers it is most unlikely that this could account for expenditure differences of the magnitude observed. Furthermore, in comparison to 1990, the 1995 Department of Internal Affairs survey of gambling participation also found a substantial reduction in expenditure on the part of young adults and beneficiaries. In the case of young people, this included a marked decline in gaming machine expenditure. This independent source of information increases confidence in the possibility that problems may have reduced in these sectors of the population. It is also worth noting that the higher rate found in Australia is much less than what it was in the earlier 1991 'four cities' study and the 1991 New Zealand survey. This suggests that a similar trend may be occurring in Australia. However, further research is necessary to corroborate or refute this.

The NZIGS report was selective in its discussion of previously high-risk groups. While it focussed on those regarded as anomalous, it failed to mention those that clearly are consistent with data from client records and other sources. For example, both Māori and Pacific Islanders remained at very high risk in 1999 and accounted for a similar proportion of total problem gamblers as they did in 1991. While males remained over-represented among people with less severe problems, in the case of current probable pathological gamblers, rates were similar in 1999 for both males and females. A similar gender convergence is evident in New Zealand counselling consultations and surveys conducted in a number of different countries.

Changing risk profiles are evident in many recent studies throughout the world and these shifts are occurring quite rapidly. The particular groups involved vary somewhat, although the feminisation of problem gambling appears to be common where gaming machines have become significant. In short, a number of previous sociodemographic differentials are being eroded as gambling patterns change and gambling spreads across populations. This is particularly evident in the Australian Productivity Commission survey. The reasons for these changes are not well understood at this stage. However, the New Zealand findings are not inconsistent with those of other recent studies or a valid reason for questioning the validity of the 1999 study.

The main NZIGS criticism of the survey methodology was the belief that procedures used in the 1999 survey (but not the 1991 survey), despite the very high response rate, resulted in relatively more problem gamblers declining to take part and more "law-abiding and non-addicted" people agreeing to participate. Another concern was that the

instrument used to measure the extent of problem gambling "seriously under-estimates the prevalence of problem gambling".

The major argument put forward to challenge the validity of the comparison of findings from the 1991 and 1999 surveys was that, despite the much higher response rate of the latter survey, relatively more problem gamblers declined to take part. The reason proposed for this was that Statistics New Zealand conducted the second survey whereas a private research company undertook the initial survey. Particular emphasis is placed on the notification letter that was sent to selected households in 1999. The report states:

A further difference, is that in the 1999 study only, a letter was sent to most selected households indicating they would be contacted by SNZ, a government department, to be surveyed about their gambling. This was a strategy that increased participation rates during pilots of the study.

There were also some other minor differences in methodology between the two surveys that the NZIGS report considered might have resulted in more problem gamblers declining to take part. This included a selection grid being used to select respondents within households rather than the next birthday method employed in 1991. Furthermore, in 1991, over-sampling was used to adjust for Māori and Pacific Island under representation, whereas in 1999 statistical weighting was employed.

It was acknowledged that the authors of the 1999 NPS had themselves made explicit the possibility that these differences in methodology might have had some influence on the composition of the sample and the way participants responded to interview questions.

Before considering these criticisms, an error made in the NZIGS report description of the methodology requires note. It was claimed that the letter to selected households said that they would be contacted to be surveyed about their gambling. The letter did not say this. Rather, it said that they had been selected for an important social survey. Gambling was not mentioned. However, when they were subsequently contacted by telephone, they were advised that the survey "was to do with betting activities or games in which there is an element of luck or chance, for example Lotto, TAB or TeleBingo." The NZIGS report failed to mention that the next part of the introduction stated "all your answers are absolutely confidential."

As mentioned, the NZIGS report's main argument is that problem gamblers would be less likely to take part in the 1999 study because it was conducted by Statistics New Zealand. The reason given for this is that "problem gamblers are in many cases anxious people who have many secrets to conceal", for example gambling-related criminal offending, and that fear of Statistics New Zealand passing personal information on to the Police or the Inland Revenue Department would have scared them off. This is of course a possibility and there is no way to determine whether it is true or not. However, it might equally be argued that familiarity with the role of the Statistics New Zealand in conducting the Census and its statutory status, combined with an assurance of absolute confidentiality, would inspire greater confidence than a private market or social research company. Again, there is no direct way of knowing this in the case of the 1999 survey, although both possibilities could be explored in future studies.

As mentioned earlier, the differences in methodology between the two studies were made because the primary concern in 1999 was to conduct a high quality survey so that

accurate information about gambling behaviour could be obtained and the stage set for more precise future monitoring. A secondary concern was to make comparisons with the findings of the 1991 survey. These two objectives were, to some extent, in conflict and, as explained in the NPS report, this involved a tradeoff that resulted in some lack of comparability between the two studies. This was one of the reasons why the NPS report cautions against concluding that the prevalence of problem gambling has reduced since 1991. This caution is stated in bold in both the body of the report and executive summary.

The NZIGS report cites information from the Australian Productivity Commission report to support the notion that problem gamblers are prone to declining to take part in surveys on gambling or to respond candidly to questions. This information was obtained from a survey of clients receiving counselling for problem gambling and is also discussed in the NPS survey reports. Twenty-four percent said that, if they had been approached to take part in a survey of this type prior to receiving counselling, they would have refused to take part. Nineteen percent said they would have mostly or completely concealed any problems and 14 percent said they would have somewhat concealed any problems.

While the critique maintains that the Australian client data support the notion that problem gamblers are much more likely than other people to decline taking part in gambling surveys, the argument is not convincing. While 24 percent is somewhat higher than the refusal rate of 16 percent for the 1999 NPS, it is actually lower than refusal rates typically attained in problem gambling surveys, especially those conducted in Australia. The Productivity Commission survey is probably the most adequate general population survey conducted in that country. However, from the information provided in the survey report, it appears that 21 percent of all people approached refused to participate in or complete the initial "screener" questionnaire and a further eight percent refused to continue on to or complete the main questionnaire that included the problem gambling measure. Thus, the 24 percent 'refusal' found in the client survey is actually lower than that obtained for the Australian national survey and most, if not all, other Australian general population gambling surveys. This suggests that problem gamblers are in fact somewhat more willing to take part in gambling surveys than adults in general.

Although the NZIGS argument does not appear to hold for refusals, it should be recalled that the client survey involved a "what if" question; it did not assess what problem gamblers actually do when they are approached in real-life interview situations. They may or may not be less likely to agree to take part. It should also be noted that problem gamblers receiving counselling are an atypical group of problem gamblers. Among other things, this sector of the problem gambling population has more serious problems and is aware that they have problems. Most problem gamblers have less severe problems than those who obtain professional help and many, perhaps most, of those who do not seek help are not aware of their problems. People with less severe gambling problems also have lower rates of gambling-related offending. For these reasons it might be expected that they are more likely to take part in surveys than those included in the client survey. However, this is conjecture. In short, we do not know whether problem gamblers generally are more or less likely to take part in gambling surveys than people without problems.

The information regarding the accuracy with which clients said they would respond to questions about problem gambling, on the other hand, does suggest that a moderate to high degree of under-reporting is likely. However, again this might be expected to apply more to people with serious problems and, perhaps, to those who are aware that they have problems with their gambling. However, again this was a 'what if' question and it is not known to what extent problem gamblers actually downplay their problems in community survey situations.

Not discussed in the NZIGS report is another important reason why problem gambling estimates are likely to be conservative. This arises from the observation that problem gamblers often have erratic lifestyles and debts that may lead to telephone disconnection for non-payment of accounts. As already mentioned, they may also more often be out of the house when interviewers telephone or visit. The recommended procedure to address this is to increase the number of attempts to make contact with the selected household and individual chosen for an interview. The NZIGS report failed to point out that this aspect of the 1999 national survey also differed from the 1991 survey. Specifically, the number of callbacks was increased with a view to picking up more of these difficult to contact people. Many more callbacks were made than is customary for problem gambling surveys. This change would be expected to increase the number of problem gamblers included in the survey. However, it is not known whether or not this was achieved. At this point it should also be recalled that, while it seems reasonable to assume the problem gamblers are difficult to contact, the two studies relevant to this issue suggest otherwise. Specifically, both found that there was little or no difference in terms of problem gambling prevalence between those contacted after a few calls and those contacted after many calls and efforts to persuade them to take part.

While it is evident that, for the reasons just outlined, there is uncertainty concerning the extent to which problem gamblers are under-represented in surveys, it was assumed in interpreting the NPS findings that they are and that this under-representation could differ between the 1991 and 1999 surveys. This was another reason why caution was advised and why it was stated explicitly that it should not be concluded that problem gambling prevalence had decreased in the New Zealand adult population from 1991 to 1999.

The NZIGS report advanced a further argument to support its contention that the somewhat different methodologies used in the 1991 and 1999 New Zealand national surveys generated samples of problem gamblers that differed sufficiently to preclude meaningful comparison of their prevalence findings. The argument was expressed thus:

A further indicator that the two populations who were measured varied between the 1991 and 1999 studies was the findings as to the prevalence of the population who had had a gambling problem sometime during their lifetime. Even if it were true that the current prevalence of problem gambling had reduced (and this is contested), the lifetime measure should remain either the same or have increased. An alternative conclusion could be reached if there had been a huge growth in the population in the eight years with the growth being in people who had never experienced problems. No such growth (e.g. a doubling or more of the population) occurred and therefore this explanation is not pursued.

In both cases the same measure was used, however, differences in process, indicating that if there was a reduction in the lifetime measure one or other of the studies were incorrect. The finding in 1991 was that 2.7% of the population had

experienced probable pathological gambling sometime during their lifetime, while in 1999 the finding was that only 1.05%, an effective 61% reduction over the earlier figure. The explanation given by the researchers is:

This means that while the lifetime SOGS-R measure has good stability (reliability) over a short timeframe, it is highly unstable when the re-test interval is stretched to seven years.

This appears to be selective reasoning. Their argument is that the current SOGS-R is a valid test of current problem gambling in the community even though it differs substantially from the figure in 1991 (due to natural recovery and lower effects of new forms of gambling) but the inconsistent finding as to past problems are blamed upon inaccuracies (lack of sensitivity) of the instrument to measure effects that produce results that are otherwise unexplainable.

In essence, the NZIGS argument is that while estimates of current (past 6 months) problems could reduce over time, if they did, little or no reduction should occur in lifetime prevalence. This is correct. If they are valid, lifetime measures that include questions phrased "have you ever experienced.....", should produce similar results even if a reduction in current problems occurs. In 1999, both lifetime and current rates were substantially lower than in 1991. As the NZIGS critique explains, this could occur if there was substantial growth in the sector of the population that had never experienced gambling problems. The NZIGR report correctly states that growth of the magnitude required did not occur. For this reason this possibility was not pursued in the NPS report or in the NZIGR critique. However, the NPS report in fact indicated that the 'lifetime' measure was not a very good indicator of lifetime problem gambling because it understates past gambling problems. The NZIGS report claimed that this explanation for the lower 1999 lifetime prevalence estimate was invalid and that a more likely explanation was that the research methodology resulted in a biased sample that contained fewer lifetime and current problem gamblers.

This section of the NZIGS report involves serious misrepresentation. It implies that the notion of instability in the lifetime SOGS-R measure was a post hoc explanation for the finding that the 1999 lifetime prevalence estimates were substantially lower than in 1991. It further implies that the quote from the NPS report refers directly to the difference between the 1991 and 1999 findings. In reality, it comes from a section of the report that discusses findings from the 1998 Longitudinal Survey. The reference to seven years in the NPS quote above refers to the interval between the 1991 initial assessment and the 1998 re-assessment of the same individuals. The gap between the two national surveys was eight years.

Rather than "selective" post hoc speculation to account for anomalous findings from the 1991 and 1999 surveys, the explanation proposed is actually based on empirical findings of instability in the lifetime SOGS-R measure from the Longitudinal Survey. This finding is discussed at considerable length in both the Longitudinal Survey and NPS reports. This basis is also made explicit in the paragraph from which the quote referred to in the NZIGS report was extracted. The paragraph, and the following paragraph, read as follows:

The Longitudinal Survey found that nearly three-quarters of the 1991 lifetime probable pathological gamblers no longer scored within this range when

reassessed seven years later using the same lifetime measure. **In other words, most probable pathological gamblers significantly under-report their past gambling problems, especially those who no longer currently experience such problems.** This means that while the lifetime SOGS-R measure has good stability (reliability) over a short timeframe, it is highly unstable when the re-test interval is stretched to seven years. In other words, it cannot be regarded as a valid measure of the actual number of people who have ever experienced serious gambling problems during their entire lifetimes.

A number of implications of the findings of lifetime SOGS-R instability, some of which are important for the interpretation of past studies and the conduct of future research, are discussed in Abbott, Williams and Volberg (1999). **In the present context it is evident that retrospective accounts do not provide a reliable measure of problem gambling that took place some years in the past.** If accurate estimates of lifetime problem gambling prevalence are sought, it will be necessary to conduct repeat general population surveys, ideally at two to four year intervals. By combining such surveys with longitudinal studies, it will also be possible to more fully examine reasons for apparent stability or change over time and calculate incidence as well as prevalence estimates. **Also relevant to the present discussion, it can be inferred that the NPS-1 lifetime prevalence based on SOGS-R performance (and presumably estimates from other studies conducted to date) are highly conservative.**

The bolding in the quotes was included in the NPS report. From the findings of the Longitudinal Survey, it would be expected that if the current prevalence estimate dropped in 1999 relative to 1991, a substantial reduction in the lifetime estimate would also occur. This was found and, contrary to the NZIGS claim, it is not an inexplicable finding. While the reasons why problem gamblers under-report problems that they acknowledged some years before have not been fully investigated, as mentioned, the phenomenon is most evident in people who no longer report experiencing problems currently. This suggests that a significant number of people in this situation forget or reinterpret past problems. As noted, this under-reporting of past problems is a major reason for the NPS conclusion that lifetime prevalence estimates significantly underestimate past problems. Interestingly, this claim of likely conservatism in SOGS-R lifetime estimates is not contested in the NZIGS report.

The NZIGS report also questions aspects of the validity of the main measure of problem gambling used in the 1999 national survey, the SOGS-R. The report argues that it significantly under-estimates the extent of problem gambling in the general population. Specifically, they state:

The conclusion must therefore be drawn that this research may under-estimate the true prevalence of problem gambling by, in the estimate of one researcher, a factor of five, while differences in the survey process may possibly also have affected the results by a factor of over two or more.

If the conclusion reached by the NZIGS critique was correct, this would mean that instead of an estimate of 0.9 to 1.8 percent of adult New Zealanders currently experiencing gambling problems in 1999, the estimate would be at least nine to 18 percent. This is clearly an absurd estimate that is many times higher than the NZIGS report's own guesstimate.

It should be recalled that following publication of the 1991NS report, the gaming industry argued that the SOGS-R, when used in general population rather than clinical situations, exaggerated the prevalence of gambling problems by a factor of four or five. This claim was consistent with the views of Professor Mark Dickerson, a major figure in the field of gambling studies. Ironically, considering the NZIGS critique, the present author and his research colleagues have provided research data and mathematical argument that present the main challenge to this claim of exaggeration.

The alleged "factor of five" under-estimate referred to comes from a recent re-analysis of data by Gambino from Phase Two of the 1991NS that was conducted by the author and Dr Rachel Volberg and is referred to and discussed in the NPS Phase One report. At the time this report was being prepared, Gambino's article, the response to it by Abbott and Volberg, and a concluding comment from Gambino were in press. The NZIGS report acknowledges

Although the authors cite a paper they have in press that suggests why Gambino's estimate may be inflated

it goes on to claim

the fact remains that no research has been conducted to refute the interpretation of their own argument.

Gambino's article, the reply by Abbott and Volberg, and Gambino's response to Abbott and Volberg were all published in the Journal of Gambling Studies during 1999 (Abbott & Volberg, 1999; Gambino, 1999a, 1999b). The NPS report was released on June 7, the following year, some months after the series of articles was published.

Some aspects of the three articles just referred to are technical in nature and possibly somewhat indigestible for readers who are not statisticians or epidemiologists. However, the main point is that Gambino's calculations produced a much higher estimate of current problem gambling for New Zealand in 1991 than it did for lifetime problem gambling. On the other hand, Gambino's revised lifetime estimate was identical to the original 1991 Phase One estimate.

In their reply to Gambino, Abbott and Volberg pointed out that while, based on the assumptions made by Gambino, the finding of a higher current than lifetime estimate is statistically possible, in the real world it could not happen. If you have a problem currently, this also counts as having a problem sometime in your life. In addition, many people (but, as discussed earlier, by no means all) who had problems in the past, but not currently, are added to those with current problems to yield the lifetime estimate. In general population surveys throughout the world, lifetime estimates are invariably higher than current estimates. Typically, as in the 1991 and 1999 national surveys, they are more than double the current estimate.

Abbott and Volberg explained that Gambino's revised 'current' estimate was inflated because it inappropriately used a lifetime rather than a current measure to check the 1991NS Phase One current probable pathological gambling allocations. This meant that many people who were not classified as current probable pathological gamblers on the basis of SOGS-S scores were deemed to actually have problems. However, the

'validation' measure was detecting lifetime problems and this included both those with current problems as well as a proportion of non-problematic people who had experienced problems at some time in the past. An appropriate validation for SOGS-R current allocations would only detect those who had problems at the time of their assessment.

As mentioned, the revised lifetime estimates, also based on the interviewers' lifetime assessments, produced exactly the same estimate as the lifetime SOGS-R. This suggests, as Abbott and Volberg and Gambino have argued previously, that the lifetime SOGS-R does not significantly over-state the extent of problems in the general population as Dickerson and others have maintained. Given that the revised lifetime estimate was based on an appropriate criterion measure while the current estimate was not, and noting that the current prevalence must be lower than the lifetime prevalence, Abbott and Volberg concluded that the 1991 current estimate would be less than the original and revised lifetime estimate of 2.7 percent. Gambino, in his published response, did not challenge this conclusion.

It is important to appreciate that the interviewer ratings used to validate the lifetime SOGS-R estimates also probably failed to detect many of the people who actually experienced problems in the past. For this and other reasons explained by Abbott and Volberg, the ratings cannot be assumed to be a more accurate measure of gambling problems than the SOGS-R per se. Consequently, although the revised lifetime estimate is much more likely than Gambino's revised current estimate to approximate the actual population estimate, the Longitudinal Survey findings and other considerations mean that it is probably conservative. The lifetime probable pathological gambling prevalence in New Zealand, in both 1991 and 1999, could well be double the survey estimates.

Apart from methodological concerns raised by the NZIGS report, it also reiterated the DSM diagnosis of pathological gambling as a persistent and recurrent mental disorder and maintained that this meant that change in prevalence over time was unlikely. The NZGS Longitudinal Survey, the only study to date to provide objective information on the persistence or otherwise of problem gambling among a general population sample, was also challenged on methodological grounds.

Additionally, the NZIGS critique claims that the NPS report asserts that the difference between the lifetime and six months provides "evidence of natural recovery" and that this interpretation is invalid. These related NZIGS considerations are presented in order to support the notion that problem gambling is a chronic disorder and, as a consequence, the finding of lower prevalence in 1999 is not possible unless the methodology of the study is flawed. A further implication is that the higher 'lifetime' estimates may be regarded as providing a better indication of the extent of current problems in the general population.

As mentioned previously, the DSM diagnosis of pathological gambling as a chronic or chronically relapsing disorder was strongly influenced by the ideology of GA. Similarly, the conceptualisation of alcoholism as a mental disorder was initially influenced by the AA notion of "once an alcoholic always and alcoholic." Early conceptualisations of both alcoholism and pathological gambling rested heavily on the retrospective accounts of middle aged European males who experienced serious gambling problems over 25 years ago and were participating in GA groups.

In the case of alcohol problems, longitudinal follow-up studies of people who had received treatment and people identified as having problems in community surveys subsequently found that long-term outcomes were variable and that self recovery was not atypical. At the time of the last (1994) DSM revision, there was very little longitudinal information available on problem gambling and, until the 1998 Longitudinal Survey, no information regarding untreated samples living in the community. This type of research is important because it includes the majority of people with significant problems who do not present for treatment or join mutual help groups. It also includes people with less severe problems and people who are not aware that they have problems. Collectively, these people greatly outnumber those who seek specialist help. In the case of alcohol problems, these people often have problems that are more transient than those upon which mutual help and initial clinical definitions were based. It does not seem unreasonable to expect that similar findings might pertain to problem gambling.

In contrast to pathological gambling, DSM classifications of the great majority of mental disorders allow for recovery and/or "in remission" diagnoses. This includes alcohol and other forms of substance dependence and misuse. Indeed, research has shown that dependencies once considered particularly resistant to change, for example heroin dependence, can in some situations be highly transitory. The 1998 Longitudinal Survey findings suggest that this is also the case for problem gambling, although people with severe problems appear to display much greater persistence. Further research is required on this topic. However, it is expected that the next full revision of the DSM will bring pathological gambling into line with other disorders and require evidence of current signs and symptoms before a diagnosis is made.

The NPS did not claim that differences between lifetime and current SOGS-R prevalence estimates were necessarily due entirely to "natural recovery" as asserted in the NZIGS report. However, it was suggested that the difference provided some indication of problem reduction over time in individuals and that this could come about through self-recovery, treatment and other factors that influence the duration of gambling problems. This interpretation of the difference between current and lifetime estimates is not novel. To the contrary, it is standard practice in epidemiology, including psychiatric epidemiology. However, the finding from the Longitudinal Survey that the SOGS-R 'lifetime' measure is highly conservative (i.e. it under-estimates the number of people who had problems in the past) suggests that this conventional approach may need to be reconsidered. This is because, if it understates the lifetime prevalence, the difference between the lifetime and current rate will also be under-stated. In other words, this index will imply greater persistence than is in fact the case.

With respect to the 1998 Longitudinal Survey it is argued in the NZIGS report that the major shortcoming methodologically was the low follow-up rate. Of the 217 people initially interviewed in 1991, 143 (two-thirds) were re-assessed in 1998. This is an acceptable follow-up rate for a population of the type studied over a seven-year period. However, participant attrition is a difficulty that all longitudinal surveys confront and, given that 'drop-outs' may differ from those who are re-assessed, presents difficulties for the interpretation of their findings. The Longitudinal Survey report made explicit the possibility that those who were not re-interviewed in 1998 included relatively more people who subsequently developed problems. However, this does not mean that the self-recovery findings are invalid. Rather, it is likely that this phenomenon is somewhat less common than the findings suggest. Although, as mentioned, there are indications

that self-recovery may be long-lasting in many instances, the longitudinal report also cautions that this requires corroboration or refutation by further research that extends follow-up beyond seven years and includes repeat assessments. It also notes that self-recovery or sustained treatment gains may be much less common among people who seek specialist help for serious gambling problems.

The NZIGS report misrepresents aspects of the 1998 Longitudinal Survey. It claims that the study involved a re-assessment of only a third of 1991 pathological gamblers and that there are

risks associated with drawing such wide-ranging conclusions from a re-sampling in 1999 of only 13 of 39 people assessed as pathological gamblers in 1991 and that the current status of the 67% who were unable to be located or re-assessed could substantially alter the findings.

In fact, 60 percent of 1991 lifetime probable pathological problem gamblers (39 people) and 73 percent of 1991 lifetime problem gamblers (38 people) were re-assessed in 1998 (not 1999). Thus, the percentage of lifetime probable pathological gamblers that were not located or re-assessed was 40 percent, not 67 percent as incorrectly claimed. In the case of people with less severe problems, the corresponding percentage was only 27. While proportionately somewhat more people who had experienced severe gambling problems were not re-assessed seven years later, the follow-up rate for the combined lifetime probable pathological and problem gambling groups was the same as that for the non-problem gamblers.

Where did the "13 of 39" come from? Thirty-nine, as mentioned in the previous paragraph, refers to the number of lifetime probable pathological gamblers who were re-assessed in 1999. Thirteen refers to the number of 1991 lifetime probable pathological gamblers who also scored as current probable pathological gamblers in 1991. This means that two-thirds of the probable pathological gamblers re-assessed in 1998 (26 of 39) from the outset of the study in 1991 did not currently experience problems of this severity. It does not mean, as alleged, that the dropout rate was two-thirds. A drop-out rate of this magnitude would definitely be good reason to question the validity of the survey findings. However, it is an error on the part of the NZIGS report. This said, while the retention rates were in fact much higher and did not differ for the 1991 problem and non-problem gamblers, this does not rule out the possibility that the minority of participants who could not be re-contacted and assessed contained proportionately more problem gamblers.

The author agrees with the NZIGS report in concluding that it is likely that problem gamblers who were not re-contacted contained more people with persistent problems. Indeed, one could go further and raise the distinct possibility that some of the non-problem gamblers who were not re-assessed may also have included people who developed problems during the past seven years. Given that pathological gamblers are at relatively high risk for suicide, it is also possible that some 1991 participants could not be contacted because they had taken their own lives. However, even if all of the problem gamblers who were not re-contacted continued to experience problems or had killed themselves, this would not negate the finding that most 1991 current problem gamblers and a substantial minority of 1991 current probable pathological gamblers did not currently report experiencing significant problems when they were re-assessed seven years later.

The NZIGS critique also argues that the NZGS findings of lower problem gambling prevalence in 1991 than in 1999 imply that gaming machines and casino gaming are "less addictive" than longer-established forms such as track betting and that greater access to gambling leads to a reduction in problem gambling. Such conclusions are then claimed to be illogical and/or at variance with other research findings. Earlier in the present report, findings from NZGS surveys were presented that indicate that frequent participation in and high expenditure on non-casino gaming machines, casino gaming machines and casino table games are strongly associated with problem gambling. Some of the NPS findings are also consistent with the view that the introduction of casinos to Auckland and Christchurch has resulted in increased prevalence rates in these cities.

There are a variety of ways in which apparent inconsistencies between various NZGS findings might be explained. First, it must be reiterated that it has not been established that problem gambling prevalence rates have decreased since 1991. They may have. However, it is also possible that the 1991 and/or 1999 estimates were incorrect. Alternatively, the prevalence differences could have been, in part or full, a consequence of methodological differences between the two surveys.

In addition to the foregoing, as already discussed, there are indications that although "addictive" forms of gambling have become more widely accessible and per capita expenditure on them has increased, the proportion of the population that participates frequently has shrunk. If this is the case, and this requires further investigation, it would be possible to have both rising expenditure on these and other continuous forms of gambling and a reduction in the prevalence of problem gambling. There are also some indications from the NZGS surveys that frequent gaming machine participation and problem gambling linked to gaming machines is more transient than engagement in track betting and associated problem gambling. If this is so, shortening in the average duration of problems could also contribute to prevalence reductions. However, again this requires further investigation. Finally, as discussed earlier, the expansion of treatment services and increased public awareness of problem gambling may also play at least some part in attenuating the association between increased gambling availability and rising problem levels. Again, while there is some support for this in the international literature, the way in which this occurs has been little investigated and research on the efficacy of early intervention and treatment is in its infancy.

The NZIGS report proposes alternative problem gambling prevalence estimates to those provided by the NPS. These have been referred to as "guesstimates" in the present report because they have not been derived from a professionally conducted national probability survey. However, this does not mean that they should be dismissed. As mentioned earlier and discussed in the NZIGS report, identifying the number of problem gamblers in the population with accuracy is a particularly difficult undertaking. The present author has described prevalence estimation as being akin to "looking for a needle in a haystack followed by statistical alchemy to attempt to convert base metal into gold." While general population surveys are more likely to provide sound estimates than other methods, it is prudent to 'triangulate' using multiple data sources.

The NZIGS used two 'triangulation' procedures. First, the number of first time clients contacting the national helpline and specialist gambling counselling services was estimated to be approximately 3,500 during 1999. Then, it was proposed that in a given

calendar year, approximately four percent of problem gamblers seek specialist services of this type. This estimate was based on information from the Australian Productivity Commission report. Specifically, from the Commission's national prevalence survey, it was estimated that 290,000 adult Australians had serious gambling problems. During the year of the survey, 12,000 people sought specialist counselling. Assuming that the four percent specialist help seeking rate also applied in New Zealand, it was estimated that "there may be in fact 87,500 current problem gamblers in New Zealand (3.1% of the population)."

The second approach was to quote the DSM statement that between one to three percent of the adult population will meet the criteria for pathological gambling. Applied to New Zealand, this is claimed to yield an estimate of 28,000 to 84,000 "and another factor of 1.5 or so" for "sub-clinical problem gamblers."

Finally, it was concluded

A rough estimate may be 50,000 pathological gamblers and another 75,000 sub-clinical problem gamblers currently exist within New Zealand.

The NZIGS report also pointed out that many problem gamblers and probably the majority of severe problem gamblers will also experience one or more additional mental disorders, that each problem gambler has an adverse impact on multiple other people in their lives and that this includes long-term intergenerational effects.

Is the NZIGS assessment of the likely extent of problem gambling and its wider impacts realistic or likely to be more accurate than those derived from the NZGS research programme?

The first approach taken in the NZIGS report would be reasonable if both the number of presentations to specialist services and the proportion of problem gamblers in the population who seek this form of help in a given calendar year are accurate.

The number of presentations to specialist services stated for New Zealand in 1999 (3,500) is probably reasonably accurate. However, there is some uncertainty about the extent to which people present to both the helpline and counselling services. This means that some people could be counted twice and the presentation numbers inflated. While the NZIGS report made an adjustment for this, some uncertainty remains about its adequacy. However, if a more conservative figure of 3,000 was used, the difference to the estimate would not be particularly large (75,000 compared to 87,500).

Determining the percentage of problem gamblers in the general population that presents to specialist services is more problematic. In large part this arises because its determination actually requires an assessment of the prevalence of problem gambling in the general population. The NZIGS calculations used prevalence information from the Australian Productivity Commission's national survey. In other words, this 'triangulation' method is not independent of population survey derived prevalence estimates. However, in the present instance, it does draw on alternative survey data to that provided by the NPS. This raises questions about the likely validity of the Australian survey. Implicit in the use of this information by the NZIGS is an assumption that it has greater validity than that obtained directly for New Zealand from the NPS.

Examination of the validity of the Australian national survey is a task beyond the scope of the present report. However, while it is the most adequate prevalence survey conducted in that country in terms of sample size and methodology, it is important to appreciate that the response rate was less than 50 percent. It will be recalled that Statistics New Zealand does not consider that reliance can be placed on findings from national surveys with response rates below 70 percent. The authors of the major meta-analysis of problem gambling prevalence studies in North America highlighted the importance of adequate response rates for problem gambling surveys and also stressed the need to attain rates of 70 percent or more (Shafer, Hall & Vander Bilt, 1997).

While there is uncertainty about the validity of the Australian prevalence estimates, if it is assumed that they are reasonably accurate, there remains a question about the accuracy of the clinical presentation data in Australia. However, also assuming that it is accurate and that about four percent of Australian problem gamblers do seek this type of help in a calendar year, is it reasonable to assume that this percentage can be applied to New Zealand in 1999? The short answer is that there is no way of knowing whether or not the Australian percentage applied to New Zealand. However, it seems most unlikely that the percentage of problem gamblers who seek help will remain constant over time or across cultures. Presentation rates could be expected to change most rapidly when services are being established or expanded to draw in previously under-served groups. More stability would be expected in mature treatment 'markets'.

Information presented earlier from the 1991 and 1999 national surveys is relevant to consideration of the percentage of problem gamblers who seek help. In 1991, only eight percent of people who themselves recognised that they had problems reported that they had ever sought help. In contrast, in 1999, 11 of the 33 people who recognised that they had problems reported 22 instances of help seeking. These percentages refer to all forms of help including that received from friends and family members, mutual help groups, specialist gambling services and general health and mental health professionals. In 1991, there were no reports of specialist assistance having been sought. This is not surprising given that there were no services of that type available at the time. In 1999, six percent said they had contacted the gambling helpline and nine percent indicated having consulted a psychologist, counsellor or psychiatrist.

It is not possible to determine what percentage of problem gamblers surveyed in the NPS contacted specialist problem gambling services as defined in the NZIGS report because only the helpline was specifically mentioned and participants were not asked about their help-seeking during the previous 12 months. Furthermore, only problem gamblers who recognised that they had problems were questioned in this regard. However, the 1991 and 1999 survey findings do illustrate the extent to which help-seeking in general for problem gambling appears to have changed dramatically over an eight year period in New Zealand. It seems likely that these changes would also have applied to help-seeking from specialist services.

From the foregoing, it is evident that there is no certainty that the four percent presentation rate has validity in Australia and much less certainty that it did so in New Zealand during 1999. If the correct rate was two percent rather than four, the estimate would have been 175,000 instead of 87,500. If it was eight percent, the estimate would have been 43,750. Interestingly, although the NZIGS calculation generated a figure of 87,500, the authors of the report stated that they concluded that there are approximately 50,000 pathological gamblers in New Zealand. No reason is given why they did not

accept the higher figure of 87,500, although they did acknowledge that 50,000 was "a rough estimate". If the latter figure is correct, however, it suggests that seven percent rather than four percent sought specialist help.

It will be recalled that the NPS estimated that in 1999 there were between 7,300 to 20,100 adult probable pathological gamblers in New Zealand. The authors of the NPS report outlined reasons why these figures were likely to be conservative and could be highly conservative. Increased by a factor of two, the estimates are approximately 15,000 to 40,000. If people with serious problems who are under the age of 18 years and in institutional settings are also included, the numbers will be somewhat higher.

The second method used by the NZIGS report to estimate the number of serious problem gamblers in New Zealand produced figures ranging from 28,000 to 84,000. These numbers were obtained by taking prevalence estimates of one to three percent that the DSM claims is characteristic for pathological gambling. In considering these estimates it is important to appreciate where the DSM obtained this information. It was obtained from the small number of prevalence studies that had been conducted in the United States and a few additional countries including New Zealand, Australia and Spain prior to the DSM manual's publication in 1994. The great majority of these were lifetime rather than current estimates. It will be recalled that lifetime estimates are typically somewhat more than double those obtained from measures presented within a six or 12 month timeframe.

Using findings from surveys of lifetime problem gambling that were predominantly conducted over a decade ago in countries other than New Zealand to estimate the number of current probable pathological gamblers in New Zealand in 1999 appears to have little justification. The basis for concluding that these estimates are likely to be more valid than those produced by two better quality national surveys undertaken in New Zealand in 1996 and 1999 are obscure. It is also unclear how the 28,000 to 84,000 figures relate to the NZIGS "rough estimate" of 50,000.

Ironically, given the lengths that the NZIGS report goes to in attempting to discredit the 1999 NPS findings, their guesstimate of 50,000, as mentioned previously, is not greatly higher than the NPS upper probability band estimate. Indeed, it is closer to this estimate than to the numbers produced by the alternative methods just discussed.

Returning now to the question of the validity of the NZIGS report conclusions regarding the extent of problem gambling and its impacts. First, it is reiterated that the basis for the NZIGS guesstimates of the prevalence of pathological and less severe problem gambling are unclear and do not appear to derive from procedures purported to provide alternatives to a national probability survey. While more than three times higher than the NPS point prevalence estimates, double the upper (95%) confidence interval estimates and apparently lacking in any empirical basis, they cannot be dismissed as being grossly inflated. Although it appears that this is the case, when the various non-sampling factors that are likely to influence problem gambling surveys are considered, while still probably on the high side, they may not be excessively so. Although there is no definitive way of resolving this matter and the related issue of changes in prevalence over time, repeat surveys using identical methodologies and obtaining high response rates would greatly assist.

The NZIGS report amplifies the caution expressed in the NPS and other NZGS reports that it cannot be concluded that problem gambling prevalence rates have reduced in New Zealand in recent years. However, the present author and the NZIGS differ in that the former concludes that the available information from New Zealand and the most recent North American research suggests that this is a distinct possibility that warrants further study.

The NZIGS report also appropriately cautions against prematurely concluding that self-recovery is widespread among problem gamblers and that their problems are typically of short duration. The NZGS findings strongly suggest that this is the case for many people with less severe problems but that it is less common among some groups of problem gamblers including those with serious problems and co-morbid alcohol problems. The NZGS reports also point out that it cannot be assumed that self-recovery occurs frequently among problem gamblers who seek specialist help. The author shares the view of the NZIGS that, for this group, problems are typically of long duration and prone to relapse. However, again it is considered that this matter should be resolved by future research rather than by recourse to clinical lore or rhetoric.

The ripple effects from problem gamblers to others in their social networks and wider community are also noted in the NZIGS report and relevant data on this topic is presented in some of the NZGS reports. Here, it is important to appreciate that the adverse impacts on other people in the lives of problem gamblers will vary enormously. In large part this is probably related to the seriousness of each problem gambler's gambling problems as well as to other aspects of their life circumstances. However, as discussed earlier and not mentioned in the NZIGS critique, the aggregate adverse impacts stemming from people with less severe problems may well exceed those of pathological gamblers. This is because people in this category greatly outnumber pathological gamblers in the total population. From the NPS, 17 percent of the adult population was estimated to have experienced at least one gambling-related problem or characteristic included in the SOGS-R screen at some time in their lives. The past six months estimate was nine percent. In this respect, the NZIGS report downplays the likely adverse effects of problem gambling in the community by focussing on people with more serious problems.

Sector groups and individuals who have a vested interest in the outcomes of policy debates and research that helps to inform such debates often selectively interpret findings to further their own particular ends. It is not uncommon for differences and apparent differences between investigators to be highlighted in an attempt to discredit findings that do not appear to serve their interests or to undermine the credibility of particular bodies of research more generally. However, it is important to appreciate that, in all fields of scientific endeavour, the presentation of alternative explanations for findings and rigorous debate are an important mechanism for the advancement of knowledge. While the NZIGS critique outlines aspects of the NZGS where there are significant differences in the way findings are explained and conclusions drawn from them, some of these differences appear to be based on misunderstanding or misrepresentation of the survey findings by the NZIGS report authors. Others are genuine differences that future research and debate will hopefully resolve. This said, it is also important to appreciate that, from a careful reading of the NZGS reports, it will be evident that on many matters there is agreement or near agreement.

To conclude this section, someone once said, perhaps the present author, that "statistics don't bleed; people do." Both the NZGS reports and NZIGS critique are dealing with high order concepts and aggregate numbers. In this realm of macro-level analysis and debate the stories, the pain, and the broken lives of individuals fade into the background. Adequately factoring this reality into policy considerations and cost-benefit analyses presents a significant challenge.

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