WHAT DO WE KNOW ABOUT GAMBLING IN NEW ZEALAND?

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Abstract

A public health approach to gambling policy depends upon careful socio-economic analysis to guide resource allocation to education, information provision and treatment. This paper argues that existing research does not provide the required factual basis for such an approach, yielding conclusions that are either inconclusive or inconsistent in crucial areas, because it tends to be aimed at exploring pathology not social processes. We conclude that a better research agenda must be based on studies that explore gambling in its social and economic context.

INTRODUCTION

The Gambling Act, which was passed into law in September 2003, was a direct output of the Gaming Review. The Act is intended to incorporate a "public health approach" to gambling policy (Korn and Shaffer 1999, Ministry of Health 2002). Such a policy approach depends, however, upon careful socio-economic analysis to guide the allocation of resources to education, information provision or treatment. Without a firm factual basis, the public health approach is a warmed-over version of the status quo.

As a step towards developing such an approach this paper questions whether existing research provides the required factual basis. We find that it does not and in fact yields conclusions that are either inconclusive or inconsistent in crucial areas. The main reason for this shortcoming is that existing research is aimed at exploring pathology not social processes. Moreover, even on its own terms, it is seriously flawed.

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We conclude that a different research agenda must be followed if the public health approach to gambling policy is to improve policy outcomes. That agenda must be based on studies that explore gambling in its social and economic context.

THE PUBLIC HEALTH APPROACH

Although the Gambling Act 2003 does not define "public health approach", the approach has been the subject of considerable discussion amongst practitioners and policy makers for some time (Bunkle 2000). It is based on the realisation that unless treatment regimes take account of the social dynamics of gambling, they are unlikely to be successful. Worse, pathology-based treatment providers are likely to actively deny the existence of wider social and economic problems as they compete for scarce resources with other investigators. This may lead to the harmful socio-economic effects of gambling being ignored or untreated.

The public health approach focuses on populations, not individuals, and seeks to base response on socio-economic factors and to encompass mental health issues. It is so named because it seeks to place gambling in a framework that is safe for individuals and not disruptive to society at large. A public health approach to gambling is one that accounts for, and addresses, the costs and benefits of gambling accruing to both individuals and communities. It aims to develop strategies that minimise the negative impacts of gambling while nurturing any possible benefits.

A public health approach to gambling policy, therefore, seeks to promote healthy and responsible gambling behaviours among all members of society and does not aim to single out those addicted to gambling. Healthy gambling involves making informed choices and can enhance the wellbeing of gamblers and the community. The public health approach is characterised by being holistic, widely available, based on socio-economic research, controlled by the community and provided through community-based institutions (Bunkle and Lepper 2002). Therefore, for-profit casinos (both virtual and physical) and unlimited access to pokies are inconsistent with a public health approach to gambling.

THE NATURE OF GAMBLING

Information

There are three main sources of information on gambling in New Zealand. First, there are administrative collections in which data are collected in processes ancillary to taxing, licensing or treatment. Second, there are data produced through prevalence surveys or surveys of attitudes towards, or participation in, gambling. Third, there are

data arising out of general statistical systems, which include input–output studies conducted for Casino Control Authority hearings.

The most developed sources lie in the first and second categories. Here the Department of Internal Affairs has been particularly active, having commissioned two large prevalence studies and regular attitudinal surveys. It has also published data from treatment providers, numbers of gambling machines and gambling expenditures. However, so far there is little data available on the flows of funds through, employment in, or value added by, the gambling industry – let alone any social impacts that may be associated with it.

It is usually assumed that for most people gambling is a benign activity, but for a small minority it has every appearance of mental illness (Abbott and Volberg 1991, 1999, Easton 2002). This pathological perspective means that many of the wider issues surrounding gambling are missing from view. It also means that the data collected are not necessarily consistent with social reality. These points are illustrated by interrogating the available data to see if they can yield reliable information about the nature of gambling.[2]

How Much Gambling?

Official figures show a very rapid rise in the supply of gambling products, including casinos, unlimited-stake gambling machines in casinos and a rapid increase in non-casino machines with a stake limit of $2.50 per play, lottery products, scratchies and sports betting, particularly since 1990. In the space of 10 years after 1993, six casinos opened serving a population of just over four million. In December 2003 there were more than 22,000 non-casino gambling machines,[3] roughly one for every 180 women, men and children in the country. The increased numbers and heavy concentration of gambling opportunities make New Zealand a useful laboratory for understanding the dynamics of gambling participation.

Loss, which we define as net expenditure on stakes minus prizes paid, is the most socially relevant figure. Official figures show that New Zealanders lost $1.87 billion

2 We concentrate on those studies that deal with gambling in New Zealand as a whole. For this task, we examined a number of sources in addition to those cited. These included a number of economic and social impact reports produced at Casino Control Authority hearings and the many studies and reports on gambling published by the Department of Internal Affairs. Those that had no direct bearing on the following argument are not cited here. However, we can direct the interested reader to Abbott and Volberg's literature review (1999).

3 Department of Internal Affairs publishes data on gambling machine numbers. Non-casino gaming machine numbers were as follows: June 2003, 25,221; 23rd September 2003, 23,083, December 2003, 22,734.

gambling over the 2002/03 financial year,[4] equivalent to 1% to 1.3% of GDP. This makes gambling a very significant factor in the economy. However, Statistics New Zealand estimates neither the value added by the gambling industry nor employment in it. Moreover, there are no official measures of the flows of funds through the gambling industry, effects on regional economies, or non-financial impacts.

Official data identify the Territorial Local Authorities in which machines are located, but not where and in what social context those machines are individually sited.[5] The Mayor of Manukau City commissioned a detailed examination of where the machines in his city are operated. It shows a clear concentration of machines in areas of low socio-economic status and relative deprivation.[6] This research was repeated for all New Zealand by Wheeler who found, on the basis of 2003 machine data and 2001 Census data, that 53% of machines were to be found in the most deprived 30% of communities (Wheeler 2003).

Who Gambles?

According to Abbott and Volberg (2000), the proportion of adults who are regular gamblers decreased from 48% in 1991 (Abbott and Volberg 1991)[7] to only about 40.8% in 1999 (Abbott and Volberg 2000:97).[8]

This result is generally confirmed by Amey (2001).[9] Amey found that in 2000 the overall rate of weekly gambling was lower than in 1995 in all gambling modes except casinos, where a marginal increase was recorded and in gaming machines where there was no change (2001:19 Table 2.5).

Gender Ratio

Abbott and Volberg's studies show major changes in the gender composition of gamblers. By re-analysing their data it can be shown that in 1991 they found

4 Department of Internal Affairs estimates.

5 The Department of Internal Affairs only publishes data on the location of gambling machines in authorised premises by Territorial Local Authority as reported to it by machine operators.

6 Submission by Sir Barry Curtis, Mayor of Manukau City, to Government Administration Select Committee, April 2002.

7 Abbott and Volberg report that total spending on gambling was $970 million and the average per capita spend was $37 per month. This means that the adult population was 2,184,685 (1991:25).

8 In 1999, the population of New Zealand over 18 years of age was 2,709,630 (see Table 9a in Abbott and Volberg 2000:97).

9 Exact comparison between Abbott and Volberg and Amey is not possible because they use different definitions of "adult population". Abbott and Volberg define an adult as anyone 18 years or over while the other two surveys used 15 years as the cut-off.

approximately[10] 699,100 men and 349,550 women who were regular gamblers (i.e. those who gamble at least weekly). In 1999 they found only 566,153 men, but 538,875 women gambled in some form at least weekly (Abbott and Volberg 2000:97 Table 9a). Thus, between 1991 and 1999 the number of regular women gamblers rose at an average rate of 5.1% a year, while the number for men fell on average by 2.2% per annum.[11] In other words, in 1991, roughly 1.86 men to every women gambled regularly, but in 1999 it was 1.05 men to every woman. The figures show that the gender patterns had converged to the point where women's activity was almost the same as men's in 1999.

In Amey's data, presented in Table 1, which are based on participation in the past year, there is evidence of a large reduction in participation by men. However, Amey found that, Lotto apart, the rate of participation by women also decreased. Compared with 1990, more women but fewer men participated in playing Lotto in 2000. Participation by men and women in all other forms of gambling that were in existence in 1990 showed a decrease. Nevertheless, in the previous five years there was a marked increase in participation in casinos.

Table 1 Participation in Gambling, by Gender, New Zealand 1990, 1995 and 2000

	Women			Men			
	1990	1995	2000	1990	1995	2000	Source: Amey 2001
Lotto	77	79	80	79	82	70	Table 3.11 p.43
Keno	n.a.	12	7	n.a.	10	5	Table 3.20 p.55
Instant Kiwi	66	62	53	65	53	43	Table 3.30 p.68
Telebingo	n.a.	n.a.	23	n.a.	n.a.	16	Table 3.39 p.79
Sports	n.a.	n.a.	5	n.a.	n.a.	12	Table 3.62 p.113
Pokies	24	19	18	33	30	18	Table 3.71 p.127
Track	21	21	15	25	25	18	Table 3.55 p.102
Casinos	n.a.	5	15	n.a.	6	16	Table 3.83 p.142
Housie	9	9	5	2	3	2	Table 3.47 p.90

10 Because the results of the 1991 survey are not presented in a manner to allow reporting of exact levels and numbers, except indirectly by inference, all such data derived from it have been rounded to the nearest 50.

11 It should be noted that these are average rates of increase. It may be that the pattern over time was far more irregular than these calculations imply. Unfortunately, we do not have any evidence to elucidate this issue.

At the start of the 1990s gambling was largely a male preserve but by the end of the decade women had almost caught up. All data show that, compared with the early 1990s, fewer men (both proportionately and absolutely) are gambling. However, it is not clear whether the changes in the gender ratios are due to greater participation by women or because the rate of participation by women has fallen more slowly than that of men.[12] Even less clear are the socio-economic factors behind this change.

Who Doesn't Gamble?

Abbot and Volberg showed that overall during the 1990s, the numbers of men and women who did not gamble rose. In 1991, 11% of all adults either had never gambled or did not bet in the last six months (Abbott and Volberg 2000:101). By 1999, this figure had risen to 13.8% (see Table 2). Amey also reports an overall rise in the proportion of non-gamblers from 10% to 13% (2001:12 Table 2.2).

Table 2 Those Who Never and Regularly Gamble, by Gender New Zealand 1991 and 1999

	1991			1999		
	Women	Men	Total	Women	Men	Total
Never*	159,500	80,850	240,350	201,031	172,079	373,110
Regular**	362,850	674,300	1,037,150	538,875	566,153	1,105,028

* Includes those who have not bet in the past six months.

** Those making bets at least once a week.

The question of whether or not abstinence from gambling is increasing or decreasing, as with all discussions of trends over time, depends upon the starting point chosen for the assessment. Amey (2001:12 Table 2.2) reports that between 1985 and 2000 the proportion of non-gamblers fell from 15% to 13%. Hence, overall, on average there is a slight, long-term tendency for the rate of non-gambling to fall. Nevertheless this overall figure masks marked variations over time and between genders.

Between 1985 and 2000, male non-gamblers rose from 13% to 15% of respondents while women non-gamblers fell from 17% to 11% (Amey 2001:12 Table 2.2). Over that time, non-gambling men fell from 13% in 1985 to 8% in 1990, stayed constant in 1995 and rose to 15% in 2000. The proportion of non-gambling women fell from 17% in 1985 to 11% in 1990 and stayed constant thereafter. Nevertheless, Abbott and Volberg found in 1999

12 It is possible that the reduction measured by Abbott and Volberg (2000) reflects a substantial fall in the frequency of play by men in a particularly popular form of gambling. Amey (2001:44) appears to indicate this may have happened in the case of Lotto after 1995. We are grateful for an anonymous referee for pointing this out.

that fewer men (13.1%) than women (14.4%) were non-gamblers (2000:95 Table 9a), which is the reverse of Amey's findings.[13]

Why Do People Gamble?

Through the 1990s, the reasons given for engaging in gambling remained relatively unchanged. More than half of all gamblers consistently state that they gamble in order to win money. In this regard New Zealand is similar to Victoria, Australia (see Table 3).

Table 3 Reasons for Gambling, by Gender, New Zealand and Australia 1991 and 1999

	New Zealand				Australia
% of gamblers responding (allows multiple responses)	1991[a]	1999[b]			1999[c]
	Total	Women	Men	Total	Total
Win Money	57	52	55	53	59
Entertainment/Fun	30	36	38	37	19
Support Worthy Causes/Charity	19	30	25	28	27
Socialising	15	14	17	15	38
Excitement/Challenge/Beating Odds	15	12	13	13	22
Habit/Hobby	7	4	4	4	n.a.
Others	7	6	6	6	n.a.
Curiosity	2	3	3	3	n.a.
Belief in Luck	n.a.	n.a.	n.a.	n.a.	12
Don't Know	2	n.a.	n.a.	n.a.	n.a.

a Source: Abbott and Volberg (1991:54 Table 13).

b Source: Abbott and Volberg (2000:125 Table 16a).

c Source: Productivity Commission (1999 Vol 1 (C):5.5 Table 5.1).

Gambling is a negative-sum game for punters. Most people lose, but a very few win in a big way. Such apparently widespread and consistent irrationality is beginning to attract attention from a variety of social scientists in Australia, the United Kingdom and the United States. Indeed, the entire area of motivation of gamblers in New Zealand deserves careful study.

13 It is possible, given the differences in sample size between the two studies, the differences in the populations sampled, the fact that Abbott and Volberg asked about gambling in the previous six months while Amey used a 12-month period, and the different methodologies employed, that this discrepancy is not statistically significant.

Which Communities Gamble?

Gambling machines are equal opportunity providers. Participation does not depend on language skills, gender, ethnicity, attractiveness, or physical or intellectual capacity. The equal chance of being a "winner" is central to the appeal of the machines and is emphasised in the way they are marketed. The interrelation of culture and ethnicity may well be critical in comprehending the social impacts of gambling participation. Anecdotal experience suggests that there has been particularly rapid change in participation of Māori, Pacific and Asian women and men.

If all problem gamblers are equally likely to seek help from treatment providers, then we would expect to see the demographic make-up of problem gamblers reflected in the demography of those seeking help. In fact this is not so. Treatment providers have found a rapid and sustained rise in women callers so that in 2002 49.2% of new callers were women. Treatment providers have also established services specific to Asian communities based on perceived need. However, the available quantitative measures only partially reflect this perception. Abbott and Volberg found in 1999 no current Asian pathological gamblers although they did find relatively high rates of pathological gambling among Māori and Pacific people and relatively low rates among Europeans.[14]

These differences may be because those of different ethnicities gambling regularly may not become problem gamblers at the same rate and problem gamblers belonging to different communities may not seek help from treatment providers to the same extent.[15] All sources agree that Māori and Pacific people are vulnerable. Nevertheless, a striking inconsistency exists between the negligible level of problem gambling in the Asian community found by Abbott and Volberg and the experience of treatment providers particularly in Auckland. The place that gambling takes in the communities of New Zealand depends upon a wide variety of factors that have yet to be fully explored. Some of these factors have been canvassed by Abbott and Volberg and others but they must remain conjectural until fully investigated by socio-economic studies.

Gender and Problem Gambling

Abbott and Volberg calculated that in 1999 there were 80,108 lifetime problem and pathological gamblers in New Zealand (2000:149 Table 20). This is 3% of the adult population. At the same time it was estimated that 2,629,522 had never had problems (see Table 4). Abbott and Volberg found that throughout the 1990s men consistently

14 A key difference between Abbott and Volberg's 1991 survey and that of 1998 was that in 1991 the Māori population was over-sampled.

15 We are grateful to an anonymous referee for this point.

suffered from problem gambling at double the rate of women, but that by the end of the 1990s the ratio of men to women among pathological gamblers was much closer to one-to-one (Abbott and Volberg 2000, Paton-Simpson et al. 2001:43).[16]

Table 4 Gambling Problems, by Gender, New Zealand 1991 and 1999

	1991		1999	
	Women	Men	Women	Men
No Problem	96.0	90.0	98.1	95.9
Problem*	3.0	6.0	1.1	2.8
Pathological**	1.0	4.0	0.9	1.2

* Those interviewed scoring 3 or 4 on the South Oaks Gambling Screen (SOGS).

** Those interviewed scoring 5 or more on the South Oaks Gambling Screen (SOGS).

Between 1998 and 2000 treatment services were confronted by 2,880 pathological gamblers (Department of Internal Affairs 2000:42, Paton-Simpson et al. 2001:43). This would represent 9.8% of the total current pathological gamblers estimated by Abbott and Volberg to be in existence in New Zealand in 1999 (Abbott and Volberg 2000:136 Table 18, Paton-Simpson et al. 2001:43).

In 2000 treatment providers assessed 1,274 new cases using a South Oaks Gambling Screen (SOGS) scale. Only 1.7% of these were found not to be problem or pathological gamblers. Of those 758 were men and 516 were women. The Australian Productivity Commission argued that there was a rising proportion of women among problem gamblers (Productivity Commission 1999 Vol. 3 (Appendices):Q9-Q12). It called it the "increased feminisation of problem gambling" (p.Q12).

A very different source of information, recently made available, suggests that the apparent increase in women's problem gambling may be related to an increase in participation in gambling. The Time Use Survey taken in 1999 found that on average New Zealand adults spent 60 minutes a day gambling.[17] On average, women gambled for 76 minutes a day and men gambled for 44 minutes a day. For women, this was slightly longer than they spend preparing food (Statistics New Zealand 1999).

16 In discussing the issue of how best to compare prevalence rates over time is a subject, Abbott and Volberg (2000:138-139) come to the conclusion that lifetime prevalence measures "partly reflect current gambling problems" and that lifetime prevalence rates are a conservative measure of lifetime gambling problems. Hence, it appears that lifetime measures understate lifetime prevalence but actually track current problems.

17 Primary and secondary time use combined.

Are Problems Increasing?

Abbott and Volberg found in 1999 that the prevalence of problem gambling was lower in 1999 than in 1990 (2000:182 Table 40). If these results are to be believed there was a significant fall in the prevalence of gambling problems and pathology amongst men and gambling problems among women during the 1990s. There was, however, no significant change in the prevalence of pathological gambling among women.

These figures mean that in 1991 between 125,000 and 174,000 men and women suffered from lifetime problem and pathological gambling (Abbott and Volberg 1991:29), but in 1999 only between 58,000 and 107,700 similarly suffered (Abbott and Volberg 2000:138 Table 18). In other words, in each year between 1991 and 1999 there was an average reduction of 8,330 cases of problem and pathological gambling.

The reported reduction in problem gambling is underlined by a separate longitudinal study conducted by Abbott and Volberg. Of a sample of 217 selected in 1991 for intensive interview, 54% were found to be either problem or pathological gamblers.[18] But only 30% out of the 143 remaining in the sample in 1998 were similarly categorised in 1998 (Abbott, Williams and Volberg 1999:61-64 Tables 7-10). Further analysis revealed that, in 1991, 27% (39 of the common sample of 143) of those intensively interviewed were classified as pathological gamblers (Abbott and Volberg 1992:33 Table 11) whereas only 13% (18 of 143 gamblers) were classified as pathological in 1998 (Abbott, Williams and Volberg 1999:61-64 Tables 7-10).[19]

These results have encouraged the view that those with gambling problems "mature out" of their condition. For example, Abbott, Williams and Volberg emphasise:

> **These findings suggest that there was a considerable reduction in the prevalence of gambling problems over time within the total sample… The reductions in lifetime and current probable pathological and problem gambling "cases" and mean scores are highly significant. (1999:53)**

18 Using the so-called lifetime (South Oaks Gambling Screen) SOGS-R screen. Problem gamblers are those answering positively to three or four questions and pathological gamblers are those answering five or more questions in the positive.

19 Of the 143 in the common sample in 1991 and 1998, 27% were classes [Typo: "classed"] as probable pathological and 27% as problem gamblers in 1991. By 1998, these percentages had fallen to 13% and 17% respectively.

However, Abbott, Williams and Volberg also stress that the above data must be interpreted with care.[20] The original sample of 217 was not randomly selected to represent the population at large in 1991.[21] Moreover, the sample used in 1998 displays a marked rate of attrition compared with 1991, despite repeated attempts to keep the sample intact (p.44). Although Abbott, Williams and Volberg argue on the basis of demographics that the follow-up sample is representative of the original group, we consider that the 1998 sample may no longer be representative of the level of problem gambling within the original 1991 sample, let alone the whole population in 1998. Finally, the view is also seriously questioned by the fact that people approaching treatment services for the first time rose from 2,923 in 1997 to 5,632 in 2000 (Paton-Simpson et al. 2001:8), a growth rate of 24.4% per annum.

Depending on which data one accepts, either the prevalence of problem gambling is declining or it is increasing very rapidly. The apparent discrepancy may be explained in a number of ways. Abbott, Williams and Volberg suggest that those suffering gambling problems may change over time with a minority developing more serious problems, while in a majority of cases problems cease altogether (1999:56). Alternatively, it may simply reflect the difference between the rapidly increasing *incidence* of pathological gambling (indicated by presentation data) at a time when the overall *prevalence* of problem gambling (measured by prevalence surveys) is static or falling.[22] We take a different view, which is that the results are seriously affected by the under-representation in the sample of members of those communities most at risk (see the section "Methodological Limitations of Prevalence Studies" below).

What Forms of Gambling Cause Problems?

In both 1991 and 1999, Abbott and Volberg explored the favourite form of gambling engaged in by problem gamblers.[23] They found that in both years track gambling was the most popular single form of gambling among problem gamblers (1991:53 Table 12, 2000:167 Table 33). However, if casino and non-casino pokies are combined their importance rose in the 1990s until pokies in general became the most important form

20 The authors state: "… strictly speaking, inferences in a statistical sense as to how 1991 frequent and problem gamblers for New Zealand as a whole are behaving in 1998 also require caution in interpretation" (Abbott et al. 1999:45).

21 For example, the original sample drawn in 1991 was limited to those living in Auckland, Wellington and Christchurch who were selected to elucidate in depth, rather than represent, four sub-groups of gamblers; namely, frequent non-continuous, frequent continuous, problem and pathological gamblers.

22 Incidence is the flow of new occurrences of a phenomenon while prevalence is the stock of existing occurrences. Unless incidence data are adjusted for occurrences that subsequently cease, the two ways of looking at phenomena will coincide only by chance. For an interesting discussion of this distinction and how it should be measured see Abbott, Williams and Volberg (1999:58).

23 "Problem gamblers" means possible problem and possible pathological gamblers combined.

of gambling among problem gamblers in 1999 (see Table 5). This tendency seems to have intensified in recent years (Paton-Simpson et al. 2003).

Table 5 Gambling Modes of Problem Gamblers, New Zealand 1991, 1999 and 2002

% of problem gamblers	1991[a]	1999[b]	1999[c]	2002[d]
Non-Casino Pokies	12.0	21.3	60.5	78.1
Track	31.3	25.8	14.8	5.5
Casino Pokies	n.a	11.8	14.7	10.4
Casino Tables	n.a	7.7	6.7	3.8
Other or Multiple or None	29.5	4.7	1.5	0.9
Sports	n.a	n.a	1.1	0.7
Housie	n.a	5.3	0.4	0.2
Lotto/Keno/Scratchies	26.6	19.1	0.3	0.4

a Abbott and Volberg 1991:53 Table 12.
b Abbott and Volberg 2000:167 Table 33. The percentages do not sum to 100 in the original table.
c Department of Internal Affairs 2000:82.
d Paton-Simpson et al. 2003:13.

The survey results are partially at odds with the experience of treatment providers. The latter find that non-casino pokies are by far the most popular form of gambling among problem gamblers[24] and that track betting is relatively unimportant. This discrepancy may reflect a near doubling in the numbers of, and more than doubling of expenditure on, poker machines since Abbott, Williams and Volberg's survey was taken.[25] In this respect, the latest data from the providers may be more in tune with the experience in other countries than are the findings of Abbott and his colleagues.[26]

Who Spends on Gambling?

Gambling expenditure is defined as stakes paid less prizes received. Assessing expenditure on gambling through surveys is notoriously difficult (some of the gaps in existing information are described in Abbott 2001b:11). In the United Kingdom, for example, it was found that respondents to pilot surveys were so confused that different definitions of expenditure had to be used for different types of gambling when the

24 Those presenting to treatment providers may not be representative of problem gamblers in general because they tend to be those with the greatest (i.e. most pathological) conditions.

25 Total non-casino gambling machines rose from 13,812 in June 1999 to 25,221 in June 2003. Expenditure on non-casino gambling machines rose from $360 million in the year ended June 1999 to $777 million in the year ended June 2002 [Update: $941 million in the year ended 30 June 2003].

26 Productivity Commission (1999: Vol 3: Q9-Q12) and personal communication with Paul Berringer, CEO of GAMCARE, who indicated a rapid increase in presentations resulting from Internet-related problems.

national prevalence survey was finally taken (Sprotson et al. 2000:33). This was because in the case of lotteries, for example, people did not take account of prizes and so overstated expenditure while in the case of gambling machines, track racing or table games people generally did account for winnings. Moreover, it may be in the nature of their condition that problem gamblers erroneously estimate their expenditure on gambling.[27] Finally, we might entertain the testable hypothesis that women and men gamblers differ in the accuracy of their expenditure estimates.

Our retro-analysis of Abbott and Volberg's figures suggests that between 1991 and 1999 average spending rose from $37 per month per adult to $41.42 per month. Men spent less in 1999 than in 1991 although women spent more. Both at the beginning and end of the period men spent more each month than women but by 1999 the gap between them had narrowed substantially (see Table 6).

Table 6 Average Monthly Spending on Gambling, by Gender, New Zealand 1991 and 1999

1991*			1999**		
Women	Men	Average	Women	Men	Average
$20	$55	$37	$30.44	$52.88	$41.42

*Abbott and Volberg 1991:27.
**Abbott and Volberg 2000:111-114 Table 14a.

We must, however, hold these estimates in considerable doubt. The 1991 data imply that total spending on gambling in 1991 was $970 million compared with a Department of Internal Affairs estimate of $575 million.[28] In 1999, spending of $1,346.8 million is implied, which compares with a Department of Internal Affairs estimate of $1,167 million (see Table 7). There appear to be two explanations for this discrepancy. On the one hand, expenditure on Lotto fell as a proportion of total gambling expenditure between 1991 and 1999, hence the tendency for expenditure on Lotto to be overstated

27 The DSM-IV screen specifies "lies to family members, therapist, or others to conceal the extent of involvement with gambling" as one of the criteria of a problem gambler. This raises the intriguing theoretical possibility that the greater the probability of a person being a pathological gambler the less truth they will reveal about their situation. Such a theoretical possibility implies that the statistical analysis of gambling screens can only be interpreted within the limits imposed by an appropriately cast "uncertainty principle".

28 The Department of Internal Affairs estimates annual spending on gambling machines and casino gambling indirectly. It has precise figures for the Lotteries Commission and precise figures for almost all race betting and sports betting. It estimates figures for gambling machines and casinos from a combination of annual reports, self-reported information and publicly-reported taxation information. From these, it estimates net loss and, by applying an average loss factor, gross turnover. Such estimates will prove highly inaccurate if there is systematic underpayment of tax or losses are significantly different from the average.

also fell.[29] On the other hand, it could also arise because women are more accurate than men about their spending and more women were engaged in gambling in 1999 than in 1991.[30]

Table 7 Total Annual Spending, by Problem and Non-Problem Gamblers, New Zealand 1991 and 1999

	1991*		1999**	
	$ million	% of total	$ million	% of total
Problem Gamblers	198.9	20.8	282.8	21.7
Non-Problem Gamblers	756.0	79.2	1,017.5	78.3
Total Spending	954.9		1,300.3	

*Abbott and Volberg 1991:52 Table 11.
**Abbott and Volberg 2000:165 Table 32.

Depending on which data one accepts, men spend far more heavily on gambling than women (or they lie more extravagantly about their spending than women) or men and women spend very similar amounts.

Abbott and Volberg (2000:166) report that those with a history of gambling problems (only about 3% of the adult population) account for 24% of expenditure on gambling. In 1999, the Productivity Commission found that Australian problem gamblers contributed 33% of all gambling expenditure (1999(c):7.41). It also reported that a similar pattern existed in some states of the United States. Lepper (1999) found a similar result in the case of the proposed Riverside Casino in Hamilton.

In 1999, Abbott and Volberg (2000:165) estimated that current problem gamblers lost an average of $526.28 per month.[31] These reported losses are substantially below those found by treatment providers.[32] For example, in 1999, in the four weeks prior to their approach for treatment, men lost an average of $2,849 and women $1,542 (Department of Internal Affairs 2000:94). A year later the gap between men and women was virtually non-existent ($2,703 for men and $2,619 for women) (Paton-Simpson et al. 2001:48). Given women's much lower average income, such expenditure by women is more significant in its impact than that by men.

Between 1991 and 1999, it was found that regular gamblers contributed an increasing proportion of total spending (see Table 8). There was a large increase in the dependence

29 We are grateful for an anonymous referee for this point.
30 In any case, the 1999 survey over-sampled women.
31 Care should be taken in using this figure since it has a relative sampling error of more than 50%.
32 This discrepancy may not be surprising if rapidly rising losses over a short time are a common trigger for help-seeking behaviour.

of the industry on regular gambling during the 1990s, especially in its continuous forms. All data confirm that a large proportion of gambling revenues are drawn from the small number of customers who have gambling problems. Indeed, one source suggests that if gambling problems no longer existed, then many gambling modes would not be financially viable.

Table 8 Total Annual Spending, by Regularity of Gambling, New Zealand 1991 and 1999

	1991[a]		1999[b]	
	$ million	% of total	$ million	% of total
Regular Non-Continuous	164.3	17.2	415.0	31.9
Regular Continuous	137.8	14.4	520.1	40.0
Non-Regular	652.8[c]	68.4	365.2[c]	28.1
Totals	954.9[d]		1,300.3[d]	

a Abbott and Volberg 1991:50 Table 10, 1991:52 Table 11.
b Abbott and Volberg 2000:108 Table 13.
c Found as residual.
d From Table 7.

THEORETICAL AND POLICY LIMITATIONS OF PREVALENCE STUDIES

The American Psychiatric Association classifies pathological gambling as an impulse-control disorder. The screens used to identify the presence of this disorder (principally SOGS and DSM-IV) are an integral part of prevalence studies. Hence, the investigation of prevalence presumes problem gambling is a matter of individual pathology. (For a helpful discussion of some of the theories of gambling pathology see National Research Council 1999:31ff.) Unfortunately, the pathological model is theoretically flawed and is an unsatisfactory guide to public policy.

The pathological approach to problem gambling assumes that gambling problems lie "in" the characteristics of individuals that make them abnormal demanders of gambling services. Apart from problem gamblers, the "normal" relationships of demand and supply, or risk and reward, are assumed to be applicable. Any problems do not, therefore, lie "in" the nature, accessibility or quantity of the supply (Easton 2002).

Prevalence studies seek to find problem gamblers on the basis of mental health data. They lead to a limited approach to the management of gambling; namely, identify the small minority of gamblers who are problem gamblers and distribute an appropriate treatment service to them. Having done that, the industry can be allowed to operate as just another part of the entertainment market subject to the conditions that customers of gambling firms are well informed or at least not actively misled and that unscrupulous business practices are rare.[33] It should be noted that this approach policy

is shared with the United Kingdom (Gambling Review Body 2001, Department of Culture, Media and Sport 2002).

Unfortunately, the pathology theory may be contrary to the known facts. In 1998, Abbott, Williams and Volberg (1999:57) found that only 28% of those classified as having lifetime problems in 1991 were similarly classified when re-screened in 1998. Such a result is not theoretically possible.[34] Either the first or the second application of the screen resulted in inaccurate results. If the first was inaccurate and the second accurate, Abbott , Williams and Volberg argue, this result casts doubt upon the use of such screens over long time intervals (1999:58).

However, if the second screen is inaccurate and the first is accurate or if both are inaccurate, then a much more serious problem has to be faced. Such a result indicates that problem gambling and pathology have different underlying causes and that any relationship between them is a matter of chance rather than cause. In other words, it is inappropriate to describe pathological gambling as a mental disorder and, hence, neither its prevalence nor its incidence can be accurately measured by means of psychological screens such as SOGS or DSM-IV.

Moreover, the mental health theory does not answer a fundamental question: How is it that so many individuals acting independently have so quickly encountered problems playing the pokies in many countries? Is it sufficient to argue that every such individual has a predilection for an impulse-control disorder that can be triggered by a number of social and individual stimuli? We cannot explore such questions here. Nevertheless, we comment that such explanations ignore key factors such as the political and market power of gambling suppliers and the apparently addictive nature of the activity. In the end, social-psychological explanations merely serve, at best, to push the problem back one more step to the social and economic causes of these forces. On the face of it, therefore, there appear to be deep, powerful and widespread social forces at play, which have yet to be explored.

Most crucially, for all its sophistication, prevalence analysis is of very little assistance in designing policy. It cannot tell us which people are likely to become problem gamblers or in what numbers. Hence, it is of little use in planning treatment services. For this purpose incidence data is considerably more help than prevalence surveys. They at least show how many had problems in the recent past and in what form.

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33 For most forms of gambling in New Zealand (casinos are an exception) a further condition is that the proceeds from it are used to encourage community activities. In practice this means, for example, that the profits from pub pokies are frequently used to support rugby teams.

34 We are grateful to an anonymous referee for pointing this out.

To our knowledge, the incidence of problem gambling has only been investigated in one study, by Cunningham-Williams et al. (1998:1093-1096). However, even these data do not assist us to predict future incidence in the population as a whole because they do not indicate who is currently excluded from treatment. Moreover, they do not assist us to design programmes that might reduce harm in the future. For that, we must employ a socio-economic approach to the problem.

METHODOLOGICAL LIMITATIONS OF PREVALENCE STUDIES

In this section, by way of illustration, we will focus on studies conducted by Abbott and Volberg and colleagues. These studies were chosen for this examination because they employ some of the most scrupulous procedures and sophisticated statistical methods of analysis of any comparable studies. Consequently any methodological limitations of their work are also likely to be found in other, less carefully conducted and analysed studies. (It should be emphasised that many of these points are also noted and discussed by Abbott and Volberg et al. themselves in these various reports.) Moreover, these studies have been particularly influential in the formation of gambling policy.

Sample Self-Selection

The sample employed by Abbott and Volberg (2000) in their 1999 national prevalence study was very large, but to a significant degree self-selected. The sample was partially drawn by making appointments for telephone interviews one week in advance. Such a technique runs the risk of attracting the lonely into the sample. It also may allow those with problems to which they are not prepared to admit to absent themselves from the study. This element of self-selection by the interviewees explains why the sample has an over-representation of middle-aged Pākehā women and under-representation of young men, Māori, Pacific peoples and Asians. These latter groups are the very ones that treatment figures suggest are now most at risk.

The study attempted to overcome the problem of an unrepresentative sample by weighting the survey data prior to the statistical analysis. The result was not satisfactory. One remarkable outcome was that, in 1999, Abbott and Volberg's sample did not include a single Asian person who was currently a problem gambler. In the case of Asian gamblers, therefore, it matters not at all how the sample is weighted because any number multiplied by zero is still zero.

It would have been preferable to use the technique of over-sampling to construct a more representative sample as they did in 1991, when Māori were over-sampled. In 1999, Abbott and Volberg did not over-sample minority populations, but chose to rely on adjusting the sample, using weights derived from the 1996 Population Census (2000).

Sample Deterioration

Abbott, Williams and Volberg (1999) made an ingenious attempt to construct a longitudinal study by re-interviewing, in 1998, the sample used in Abbott and Volberg (1991), which had consisted of intensive interviews of 217 subjects and was not intended to be representative of the population as whole.

By 1998, it was possible to find only 143 subjects of the original sample. Such a degree of sample deterioration makes comparison between the years highly dubious. Yet the influential "maturing out" conclusion is based on this dubious comparison. The study is an interesting and suggestive study of the 143 concerned but its results cannot be interpreted beyond that. It certainly cannot be taken as applicable to all gamblers nor even to all gamblers with problems. The missing 73 subjects may well have been those with continuing problems.

Telephone Interviewing

Data for the Abbott and Volberg prevalence studies were collected through telephone interviews.[35] The interviews consisted of administering a psychological screen for problem gambling together with enquiries about demographics, employment and income.

The psychological screen was designed to be used by psychologists in face-to-face situations in order to assess patients for possible gambling problems. One of the assessments that psychologists would make when administering the screen is the degree to which the patient is telling the truth. This assessment is based on the psychologist's judgements based on body language and questions designed to check consistency – difficult to do during telephone interviews.

Finally, interview data about incomes and expenditure are notoriously unreliable unless pay-slips and receipts verify them (Blascynski 1997:237-252). Many, even non-pathological, gamblers count their winnings and ignore or minimise their losses. This is particularly true of problem gamblers in denial. Some indication of the scale of this

35 Four of the seven studies published as part of the 1999 New Zealand Gaming Survey involved face-to-face interviews. However, Abbott and Volberg decided against using such techniques for the national prevalence survey because it would limit the sample that was possible to achieve with the available financial resources and because the 1999 survey would not be comparable with the 1991 prevalence study. Although the various face-to-face studies have been consulted and do yield many informative and suggestive hypotheses about the socio-economics of gambling, they do not directly bear upon the main argument of this paper, which is about general social and economic trends. The face-to-face studies are Abbott, Williams and Volberg 1999, Abbott and McKenna 2000, Abbott, McKenna and Giles 2000 and Abbott 2001a.

unreliability can be gained by comparing the total expenditure on gambling calculated by Abbott and Volberg with official estimates.

Use of SOGS

Abbott and Volberg, together with all other prevalence researchers, define the existence or otherwise of problem gambling in terms of responses to one or other of the standard gambling screens. Accordingly, those scoring 3 or 4 on SOGS are defined as problem gamblers and those scoring 5 or more are regarded as pathological. (Abbott and Volberg 2000 compare the results obtained using SOGS with measures obtained by using DSM-IV.) Such screens have been changed for use with young people and have to be regularly updated as behaviour changes over time. (Abbott, Williams and Volberg (1999:58) speculate whether or not the lifetime SOGS screen is not actually measuring current problem and pathological gambling. In other words, it may be measuring incidence rather than prevalence.)

It has been suggested by Rossen (2001:8) that screens (including SOGS) used to define problem gambling are biased against finding women problem gamblers because the pathology of problem gambling has been based on male stereotypes. It may be that we have yet to find the most appropriate methods of identifying women problem gamblers. If so, the degree of problem gambling by women may have been systematically underestimated in the prevalence studies so far conducted.

For example, the problems that women face as a result of gambling may be more tied to financial difficulties and social isolation compared with men. The only problems that are counted are those identified using the SOGS test which are entirely psychological. Social problems which may result from gambling, and from which a gambler may have suffered, are not included (Department of Internal Affairs 1995) and cannot be inferred. Hence, it may be more appropriate to enquire whether or not a person had left children in a risky situation (for example, in the street, in a locked car or home alone) while gambling than if they were going though a suicidal state of mind.

ANOTHER RESEARCH AGENDA

The lacunae and inconsistencies in available data detailed above are hardly surprising given the perspective of the studies involved. Prevalence surveys generate the hypotheses they test from the standpoint of individual pathology. The focus of such studies is bound to be on unusual and abnormal mental states rather than widespread social and economic processes. As a consequence, despite the long-standing efforts of

the Department of Internal Affairs,[36] the most basic elements of the social and economic basis of gambling are not adequately explored by such investigations. This should not be taken to mean that the studies discussed above have nothing to say about the social and economic context of gambling. Indeed, the studies, especially those involving face-to-face interviews, contain a welter of interesting hypotheses about this very matter. Unfortunately, in many cases, it is difficult to relate these suggestive results to a well-founded view about the relationship between social and economic factors and the extent and distribution of various gambling behaviours in the wider community.

The drag on local and regional social and economic development of gambling has yet to be properly analysed. Yet without a clear idea of the socio-economic role of gambling the public health approach to gambling policy must remain empty rhetoric.

Increased problem gambling means less saving and less spending on other items whether luxuries or necessities. The results among this market segment might be hunger, loss of housing, bankruptcy and even suicide (Grinols and Mustard 2001:143-162). It may mean that the needs of children and other dependants are ignored. The effects on the wider community may include increased defalcations, theft and other criminal activities aimed at financing gambling habits (Gazel 1998:66-84). In New Zealand we have far to go in exploring the potentially corrosive mix of social and economic forces that swirls around problem gambling.

Perhaps from an economic standpoint the most serious result is the erosion of the ability to save and hence to build new capital and enterprise within the local community. (This includes the building of social, human and cultural capital within social networks.) Jobs provided at a far-off casino or overseas pokies factories are no substitute for those that might otherwise be created locally. The stress that lack of economic prospects brings is also often a harbinger of other health problems and the lack of studies on the impact of gambling on local community enterprise is a serious gap, especially in view of the Government's policy interest in this area.

The fact that in most societies it is the women's networks that are crucial to local wealth and job creation means that increased gambling by women has a particularly negative effect on future employment. Most activity for women is not market activity (Statistics New Zealand and Ministry of Women's Affairs 2001). In New Zealand, in 1998–99, both men and women spent an average of seven hours a day in all forms of work. However,

36 Compared with many jurisdictions the record of the Department of Internal Affairs in promoting research into gambling in New Zealand is good. It has sponsored a series of quinquennial surveys on participation in, and attitudes towards, gambling, commissioned two prevalence surveys and published a regular flow of monographs and data on various aspects of gambling.

70% of women's work was unpaid and 60% of men's was paid. Women's work is largely concerned with the maintenance of relationships and networks, and in caring for and socialising the young, the ill and the old. The real impact on such invisible work is of critical significance for sustainable economic development. (From analysis of the Time Use Survey data it is estimated that unpaid work is the equivalent of 2 million full-time equivalents (FTEs) compared to a total paid labour force of around 1.7 million FTEs, Statistics New Zealand and Ministry of Women's Affairs 2001:17).

For example, the symptoms of women's problem gambling may be more social than individual. In most societies, it is women rather than men that are the cement that ensures that society hangs together, especially during crises (see, for example, Silvey and Elmhirst 2003:865-879). Much of this work is unpaid and largely goes unmeasured. It provides the means by which people survive under stress and create life chances for themselves (Dominguez and Watkins 2003:111-135). Hence, the time spent gambling that is not devoted to the nurturing of social networks may be more damaging to society as a whole than the money diverted from other needs. The importance of this issue is seen in the finding for the Time Use Survey that women were spending more time gambling than preparing food, and deserves further investigation.

Gambling may be a symptom, rather than the cause, of a breakdown of the very possibility of collective action through social networks. In other words, it may be that the individualisation of society has gone so far as to destroy the networks on which future social and economic development normally depends. Perhaps we need to investigate the public health consequences of the curtailment of individual life chances that has resulted from the economic policies of the past 20 years.

It may be, therefore, that the incidence of problem gambling is triggered by social and economic deprivation. If so, it may be possible to predict the need for treatment services from socio-economic indicators. Anecdotal support for this view comes from the reports of increased gambling, even in Moslem countries, in the aftermath of the Asian financial crisis in the 1990s (Dursin 2001).

CONCLUSION

The public health approach to gambling policy must be based on a thorough knowledge of the causes and consequences of gambling. Unfortunately that knowledge does not yet appear to exist in New Zealand. It follows that a substantial proportion of the Problem Gambling Levy, which was introduced in the Gambling Act, should be devoted to socio-economic research into gambling.

The research agenda that should be followed is different from that employed until now. It should ask detailed questions about the social and economic foundations of

gambling activities. It should also aim to predict the needs of problem gamblers and to design and propagate effective education about safe gambling behaviours.

It is important that (in addition to the work of the Department of Internal Affairs) Government takes a broader interest in this agenda, and investigates the health, gender, development and other effects of the spread of gambling, and develops a more realistic model on which to base New Zealand's gambling policy.

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