"Poker Machine Playing and
Problem Gambling
amongst Members of
Sydney Registered Clubs"

Southern Cross
University

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Executive Summary

This study reports on the second stage of a three-part project which examines poker machine playing behaviour in Sydney registered clubs. The aims of this study were:

- to compare by social, demographic and ethnic characteristics the poker machine playing behaviour of a random sample of members of some of the largest Sydney registered clubs; and

- to compare the characteristics of problem poker machine players of some of the largest Sydney registered clubs with profiles of problem gamblers as identified by prior research.

To address these objectives, a telephone survey was conducted of 3,000 members, selected randomly from six of the largest Sydney clubs. Data was collected pertaining to their patronage of registered clubs, participation in various club-based activities and preferred leisure activities; their gambling preferences and frequency of participation in thirteen major types of gambling; their poker machine playing behaviour; the incidence of problem gambling, both for gambling in general and poker machine playing in particular; and their socio-demographic characteristics.

The summary of results which follows is divided into three major sections - 1) results for the 3,000 club members surveyed, including their gambling participation and the characteristics which distinguish poker machine players from non-players; 2) results for the 2,430 gamblers amongst the club members, including their gambling preferences and participation, the incidence of problem gambling and gambling-related problems, and characteristics which distinguish probable problem gamblers from non-problem gamblers; and 3) results for the 1,879 poker machine players amongst the club members, including their poker machine playing behaviour, the incidence of problem gambling and gambling-related problems related specifically to poker machines and characteristics which distinguish probable problem poker machine gamblers from non-problem poker machine gamblers.

Summary of Results for All Club Members

Gambling Participation

Of the 3,000 club members surveyed, 19% do not gamble, 8.5% gamble only on Lotto-type games, 62.6% gamble on poker machines and 9.8% gamble on other forms of gambling.

Socio-Demographic Characteristics

The 1,879 respondents who play poker machines are more likely than non-poker machine players to:

- be aged between 15 and 34 years;

- be educated to School Certificate or Higher School Certificate level;

- be never married or in de facto relationships;

- have no dependent children aged 6 years and over;

- be purchasing their own home, living with parents or renting their home from private landlords or the Housing Commission;

- be working full-time, engaged in home duties, students or unemployed;

- be tradespersons, clerks, salespersons/personal service workers, or labourers or similar;

- earn a gross personal annual income of less than $8,001 or between $12,001 and $40,000;

- earn a gross household annual income of between $8,001 and $12,000, between $20,001 and $50,000, between $60,001 and $80,000 or between $100,001 and $150,000

- have their main source of income as wages/salary or other government benefit;

- be first or second generation migrants from the United Kingdom, New Zealand and the Pacific Islands, South-East Asia, Eastern Europe and Western Europe;

Club Patronage and Participation in Club-Based Activities

Respondents who gamble on poker machines were more likely than non-poker machine gamblers to belong to more than one club and patronise a club at least once a month. They also have meals and drinks, attend entertainment and participate in raffles and indoor sport at a club more frequently.

Leisure Preferences

Higher proportions of poker machine gamblers than non-poker machine gamblers prefer socialising, going to watch sporting events, drinking, shopping and gambling.

Summary of Results for All Gamblers

Of the club members surveyed, 81% gamble on at least one of the thirteen types of gambling examined.

Gambling Preferences

Amongst the 2,430 respondents who gamble in some way:

- 50.9% prefer Lotto-type games;

- 19.9% prefer club poker machines;

- 9.2% prefer betting at the TAB;

- 5.7% prefer club keno;

- 4.7% prefer on-course betting;

- 4.1% prefer bingo;

- 3.6% prefer casino table games;

- Very small minorities prefer hotel gaming machines, private gambling, casino poker machines or casino keno.

Gambling Participation

Amongst the 2,430 gamblers surveyed:

- 61.9% are regular players of Lotto-type games;

- 23.3% are regular club poker machine players;

- 12.2% bet regularly at a non-club TAB;

- 11% are regular club keno players;

- 8.2% regularly bet on a club TAB;

- 6.8% are regular club bingo players;

- 2.2% are regular hotel gaming machine players;

- 2.1% are regular on-course punters;

- less than 2% gamble regularly on non-club bingo, private games, casino poker machines, casino table games and casino keno.

Prevalence of Problem Gambling

- 3.7% of the 3,000 club members (about 1 in 27) are probable problem gamblers;

- 4.5% of the 2,430 gamblers (about 1 in 22) amongst the club members are probable problem gamblers.

Gambling-Related Problems for Problem Gamblers

The 110 probable problem gamblers had experienced the following gambling-related problems in the last 6 months:

- Over half have gambled more than intended (90.9%), have felt guilty about their gambling (85.5%), have chased gambling losses (68.2%), have been concerned they may have a gambling problem (64.5%), have been criticised by others about their gambling (63.6%) and have felt unable to stop gambling (60%);

- Over about one-quarter have had arguments caused by gambling with significant others (42.7%), have lied about gambling losses (34.5%), have hidden signs of gambling from significant others (24.5%) and have borrowed gambling money from household sources (31.8%), their spouse (25.5%), credit cards (25.5%) or relatives (24.5%);

- Smaller proportions have lost work or study time due to gambling (16.4%), have borrowed gambling money from financial institutions (15.5%), have not paid gambling-related debts (9.1%), have passed bad cheques for gambling money (6.4%) and have borrowed gambling money from other sources (less than 5%).

Socio-Demographic Characteristics of Problem Gamblers

Higher proportions of probable problem gamblers than non-problem gamblers:

- are aged 15-44 or 50-54 years;

- are never married, de facto and divorced;

- are purchasing their home, or renting from a private landlord or the Housing Commission, or living with parents;

- are working full or part-time or are unemployed;

- are in blue collar and lower white collar occupations, such as tradespersons, clerks, salesperson/personal service workers or plant or machinery operators/drivers;

- have wages/salary, their own business or other government benefit as their main source of household income;

- were born in Asia, Europe, New Zealand or the Pacific Islands;

- have fathers or mothers born in Asia, Europe, the Middle East, Africa, New Zealand or the Pacific Islands;

- speak Asian, European, Middle Eastern and African languages at home as well, or instead of, English.

Club Patronage and Participation in Club-Based Activities for Problem Gamblers

Higher proportions of problem gamblers than non-problem gamblers patronise a club more frequently, attend a club alone, with other family members or with friends. They also have drinks, attend entertainment and participate in club raffles and indoor sport at a club more frequently.

Leisure Preferences of Problem Gamblers

Higher proportions of probable problem gamblers than non-problem gamblers prefer gambling, indoor sport or exercise, going to watch sporting events, drinking and dining out.

Gambling Preferences of Problem Gamblers

Amongst the 110 probable problem gamblers:

- 40.9% prefer club poker machines;

- 16.4% prefer TAB betting;

- 16.4% prefer Lotto-type games;

- 8.2% prefer on-course betting;

- 6.4% prefer casino table games;

- 5.5% prefer club keno

- very small proportions prefer other types of gambling.

Gambling Participation of Problem Gamblers

Higher proportions of probable problem gamblers than non-problem gamblers gamble more frequently on poker machines, the TAB, on-course betting, casino table games, hotel gaming machines, private gambling and club keno.

Summary of Results for All Poker Machine Players

Of all club members surveyed, 62.6% play poker machines. This amounts to 77.3% of all respondents who gamble.

Poker Machine Playing Behaviour

Amongst the 1,879 poker machine players in the sample:

- 98.0% mainly play them at a club;

- 33.3% usually play machines with their spouse, 29.1% play with friends and 26.2% play alone;

- 68.4% play poker machines mainly for entertainment/social-related reasons, 21.4% play for money-related reasons, 8% play for reasons related to risk, while only 0.4% admitted playing due to compulsion;

- 35.9% usually play 5 cent machines, 33.5% play 10 cent machines, less than 10% each played 2 cent and 20 cent machines and very small proportions play $1 and $2 machines;

- 57.5% usually wager multiple coins per poker machine play;

- 62.1% usually bet on more than one line per poker machine play;

- 48.6% generally spent up to 45 minutes playing the machines, with 73.4% playing for up to an hour;

- mean poker machine expenditure per session is $25.79;

- mean weekly poker machine expenditure is $19.71;

- 53% use their entertainment/recreation budget for poker machine money, 19.9% use general bank savings, while 16.1% use money from their housekeeping and living budget;

- The most likely use of $50, $100, $500 and $1,000 jackpot prizes is to take it home and save it, with the second most likely expenditure being to buy something special away from the club;

- 85.4% recognise that poker machine playing is a game of pure chance;

- 50.8% think that the way people play poker machines has no influence on their chances of winning, 23.8% consider that this had some influence, while 18.8% think it has a strong influence.

Prevalence of Problem Poker Machine Gambling

- 2.4% of the 3,000 club members (about 1 in 41) are probable problem machine gamblers;

- 3.0% of the 2,430 gamblers (about 1 in 33) are probable problem machine gamblers;

- 3.8% of the 1,879 poker machine players (about 1 in 26) are probable problem machine gamblers.

Gambling-Related Problems for Problem Poker Machine Gamblers

The 72 probable problem machine gamblers have experienced the following gambling-related problems in the last 6 months:

- Over half have gambled more than intended on poker machines (95.8%), have felt guilty about their poker machine gambling (91.7%), have considered they have a problem with poker machine gambling (76.4%), have chased poker machine losses (68.1%), have felt unable to stop playing poker machines (68.1%) and have been criticised by others about their poker machine gambling (65.3%);

- For over one quarter, their poker machine gambling has caused arguments with significant others (45.8%), they have lied about poker machine losses (34.7%) and they have borrowed household money (27.8%) or money from their spouse (6.4%) or from credit cards (26.4%) to gamble on poker machines;

- Smaller proportions have hidden signs of poker machine gambling from others (20.8%), lost work or study time due to poker machine gambling (15.3%), not repaid poker machine gambling-related debts (9.7%) and borrowed money from other sources to finance their poker machine gambling (1.4% to 18.1%).

Socio-Demographic Characteristics of Problem Poker Machine Players

Higher proportions of probable problem machine gamblers than non-problem poker machine gamblers:

- are never married, divorced, separated or in de facto relationships;

- are purchasing their own home, renting it from a private landlord or the Housing Commission, or living with parents;

- work full or part-time or are unemployed;

- were born in Asia or Europe;

- have fathers or mothers born in Asia, Europe, New Zealand or the Pacific Islands;

- speak Asian or European languages instead, or as well as English, at home.

Club Patronage and Participation in Club-Based Activities of Problem Poker Machine Players

Higher proportions of probable problem machine gamblers than non-problem poker machine gamblers patronise a club more frequently, usually attend a club alone, and have drinks, participate in raffles and attend meetings at a club more frequently.

Leisure Preferences of Problem Poker Machine Players

Higher proportions of probable problem machine gamblers than non-problem poker machine gamblers prefer gambling, indoor sport or exercise, going to watch sporting events and dining out.

Gambling Preferences

Amongst the 72 probable problem machine gamblers:

- 47.2% prefer club poker machines;

- 16.7% prefer Lotto-type games;

- 9.7% prefer TAB betting;

- 6.9% prefer casino table games;

- very small numbers prefer other forms of gambling.

Gambling Participation of Problem Poker Machine Gamblers

Higher proportions of probable problem machine players than non-problem poker machine players gamble more frequently on poker machines, the TAB, casino table games, hotel gaming machines, club keno and private gambling.

Poker Machine Playing Behaviour of Problem Poker Machine Gamblers

Higher proportions of probable problem machine gamblers than non-problem poker machine gamblers:

- play poker machines at both clubs and casinos;

- usually play poker machines alone or with other family members;

- play poker machines to win money and for reasons related to risk and challenge;

- always bet more than one coin or credit at a time when playing poker machines;

- always bet on more than one line on poker machines at a time;

- play poker machines for 45 minutes or longer per session;

- generally use money from housekeeping/living costs, general bank savings or a specific gambling budget;

- are likely to reinvest a $50, $100 or $1,000 jackpot on poker machines.

In addition, probable problem machine players:

- have a mean poker machine expenditure per session of $90.56, compared to $23.21 for non-problem players;

- have a mean poker machine expenditure per week of $123.21, compared to $17.76 for non-problem players;

- represent 3.8% of all poker machine players in the sample, but contribute to 21.7% of all poker machine expenditure, which is 7 times the total expenditure of non-problem poker machine gamblers and nearly 12 times the total expenditure of all club members.

The results of this study have provided some descriptive data on the gambling and club-based activities of members of large Sydney clubs for the first time. Importantly, the study has revealed that the incidence of problem gambling amongst the club members surveyed, both for gambling in general and for poker machines in particular, is high enough to represent a substantial number of people. According to the Registered Clubs Association of NSW (1994:5), there are about 2 million club members in NSW. If the percentage of problem gamblers amongst club members statewide is similar to the 3.7% found for members of the six clubs surveyed, this would equate to around 74,000 problem gamblers. Given that each case of problem gambling has been estimated to have an adverse effect on up to ten significant others (Dickerson, Walker & Baron, 1994:41), about 740,000 additional people in NSW would be adversely affected by problem gambling amongst club members. Using the same method of extrapolation for the incidence of problem poker machine gambling, it is estimated that about 48,000 club members in NSW are problem poker machine gamblers, adversely affecting an additional 480,000 people. Furthermore, poker machines, either alone or in conjunction with other types of gambling, are responsible for about two-thirds (65.5%) of the cases of problem gambling amongst the sample of club members surveyed.

This study has also identified certain features that distinguish problem gamblers and problem poker machine gamblers from people who gamble and play poker machines in a controlled fashion and with few associated problems. This profile should assist in targeting welfare, counselling, advisory and support services to people most at risk of developing gambling-related problems.

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Section One
Background to the Study

This project has been conducted for the Casino Community Benefit Fund Trustees. Under the Casino Control Act 1992, Sydney Harbour Casino Pty Ltd is required to pay into the Casino Community Benefit Fund a 2% community benefit levy on casino gaming revenue from the commencement of gaming operations on 13 September 1995.

The Casino Community Benefit Fund Trustees are responsible for advising the Minister for Gaming and Racing on allocating funds for appropriate community benefit projects from the Casino Community Benefit Fund so that:

- original and innovative research can be undertaken into gambling and the social and economic impact of gambling on individuals, families and the general community to effectively study the problems it causes for some members of the community and how these effects can be modified;

- community attitudes to gambling and the different forms of gambling may be established and monitored;

- the treatment and rehabilitation services currently available for gamblers and their families may be enhanced to provide greater support to problem gamblers and their families;

- problem gamblers and their families are properly identified and counselled, and that there is a marked and sustained reduction in gambling problems amongst those counselled;

- specialist training is provided for counsellors, social welfare workers and others to enable them to detect and effectively counsel and assist family members and others affected by their relationship to a problem gambler;

- public and industry education is encouraged to raise the awareness of problem gambling in the community and promote responsible attitudes to gaming in order to prevent an increase in the number of persons suffering from gambling related problems;

- wherever possible, the project may otherwise address the social impact of gambling;

- the community may gain genuine and tangible benefits from the project.

The Fund is administered by nine trustees drawn from the Casino Control Authority, the Wesley Mission, the Salvation Army, the Society of St Vincent de Paul, the Uniting Church in Australia, the Department of Training and Education Co-ordination, the Department of Health, the Department of Community Services and the Department of Gaming and Racing.

The project team was commissioned by the Casino Community Benefit Fund Trustees in April 1996 to conduct this project.

Section Two

Project Objectives

This study represents the second stage of a larger project which examines poker machine playing behaviour in Sydney registered clubs. The aims of the three-stage project are to investigate the poker machine playing characteristics of Sydney club members of different social, demographic and ethnic backgrounds and to evaluate the adequacy of services available to populations most at risk of developing problematic gambling behaviour.

More specifically, the objectives of the project were to:

- identify the social and demographic characteristics that tend to support registered clubs and their poker machine gaming activities in the Sydney Statistical Division;

- compare by social, demographic and ethnic characteristics the poker machine playing behaviour of a random sample of members of some of the largest Sydney registered clubs;

- compare the characteristics of problem poker machine players of some of the largest Sydney registered clubs with profiles of problem gamblers as identified by prior research;

- investigate the current and future adequacy of services for problem gamblers from the social, demographic and ethnic populations identified as most at risk of developing problem poker machine gambling behaviour in Sydney.

To address these objectives, the study was conducted in three stages.

- The first stage made use of secondary data collected by the Australian Bureau of Statistics (ABS) and the NSW Department of Gaming and Racing to determine whether there are distinct socio-demographic profiles of areas in the Sydney Statistical Division which support registered clubs and club poker machine gaming. The findings of this first stage of the study are contained in an earlier report entitled *Socio-Demographic Characteristics of Resident Populations Supporting Poker Machine Gaming in Sydney Registered Clubs* (Prosser, Breen, Weeks & Hing, 1996).

- The second stage consisted of a survey of 3,000 members of the largest Sydney clubs to collect data pertaining to the socio-demographic characteristics of club members, their leisure and gaming activities, their poker machine playing behaviour, and the incidence of problem gambling. This volume reports on this second stage of the project.

- The third stage involves personal interviews with representatives from service providers for problem gamblers in Sydney to determine how they raise awareness of their services amongst problem gamblers from different social, demographic and ethnic backgrounds, usage of their services by those from various backgrounds and how awareness of and access to these services could be improved for these groups. This third stage of the study is due for completion in June 1997 and will be reported on in a subsequent volume.

Section Three
Prior Research into Poker Machine Playing

In order to set the study into perspective, this section firstly defines poker machines and problem gambling and then briefly reviews prior research into various aspects of gambling in general, and poker machine playing in particular. These aspects include prevalence rates and impacts of problem gambling amongst poker machine players, explanations for gambling drawn from a range of academic disciplines, reasons for playing poker machines and persisting with play in the face of large financial losses, the potential of contemporary poker machines for encouraging problem gambling and the prevalence rates and socio-demographic characteristics of problem gamblers. (Background on the NSW registered clubs industry and a review of the literature pertaining to socio-demographic characteristics of poker machine players have been presented in the report on Stage One of the project, *Socio-Demographic Characteristics of Resident Populations Supporting Poker Machine Gaming in Sydney Registered Clubs.*)

3.1 Definition and Nature of Poker Machines

The principle Act governing the operation of poker machines in NSW registered clubs is the Registered Clubs Act 1976 (NSW), which defines them as "device(s) designed for the playing of a game of chance, or a game that is partly a game of chance and partly a game requiring skill, and for paying out money or tokens or for registering a right to an amount of money or money's worth to be paid out". In some jurisdictions, various types of poker machines are more commonly known as slot machines, gaming machines, electronic gaming machines, fruit machines, approved amusement devices, video gaming machines or video lottery terminals. However, regardless of some variations in their mode of operation, all of these machines have "the common characteristics that a player may place a small wager on a game of pure chance, or a game of both chance and an application of game rules ... but not pure skill or manual dexterity, and potentially win a prize either in cash or in kind" (Toneguzzo, 1996a:145). The types of poker machines operating in NSW registered clubs at the time of this study function on pure chance and pay out cash prizes.

Despite extensive technological developments in game presentation, player options and security mechanisms, the essential nature of the game has changed little since Charles Fey developed the original Liberty Bell machine over a century ago. The basic functions of inserting money, pulling a handle (or pressing a button), watching the symbols line up and collecting payouts from winning combinations remain as essential features of contemporary poker machines (Connor, 1996:8-9). However, unlike the original machines, modern poker machines are controlled by microprocessors, with game outcomes determined by pseudo-random number generators, with the prize schedule contrived so that statistically, there is a house advantage on the game (Toneguzzo, 1996a:145). In NSW, legislation requires that a minimum of 85% of total wagers on each club poker machine be returned to players as prizes, with the remaining 15% or less accruing as gross profit for the clubs (Registered Clubs Regulation 1996).

3.2 The Concept of Problem Gambling

Terminology to describe gambling behaviour which is frequent and uncontrolled, causing a range of harmful results, has included "compulsive", "pathological", "addictive" and "problem" gambling.

The term "compulsive" gambling implies that the condition has no permanent cure and is an impulse disorder. Its common use has resulted from its adoption by the self-help group, Gamblers Anonymous (Caldwell et al., 1988:36).

"Pathological" gambling is defined in the Diagnostic and Statistical Manual (DSM) III of the American Psychiatric Association (1980) and is classified as:

> *"a progressive behavior disorder in which an individual has a psychologically uncontrollable preoccupation and urge to gamble. This results in excessive gambling, the outcome of which compromises, disrupts or destroys the gambler's personal life, family relationships or vocational pursuits. These problems in turn lead to intensification of the gambling behavior. The cardinal features are emotional dependence on gambling, loss of control and interference with normal functioning."*

While this view of heavy gambling as a sickness has received widespread criticism (see for example Orford, 1985; Walker, 1996), the use of the term "pathological" gambling has been partially sustained by the widespread adoption of the South Oaks Gambling Screen (SOGS) (Lesieur & Blume, 1987) which is the only internationally established measure validated against the DSM (edition III-R) for diagnosing pathological gambling (Australian Institute for Gambling Research, 1996: Appendix 1). Due to similar criticisms which have been levelled at the medical assumptions behind the term "pathological" gambling, "addictive" gambling is also a less frequently used term.

This study uses the term "problem" gambling in recognition of a growing trend across many studies of gambling behaviour to adopt this term (Dickerson, 1995:79). Problem gambling is defined as gambling which is frequent, is at times uncontrolled and has resulted in some harmful effects (Australian Institute for Gambling Research, 1995:111). In this study, it is measured by a score of 5 or more on the SOGS, although a variety of cut-off points have been used in different studies. In addition, such a term "avoids some of the pejorative connotations of the psychiatric terminology and 'problem gambling' is rapidly becoming accepted in Australia by various state government departments charged with developing policies and services to assist individuals and families adversely affected by gaming and wagering" (Australian Institute for Gambling Research, 1996:51). In addition, the Australian Institute for Gambling Research (1995:111) notes that the term is readily understood and makes no assumptions about causes or cures. Thus, the term problem gambling is adopted in this study, except in the literature review where the transition in thinking from gambling as a sickness to gambling as a form of leisure is discussed.

3.3 Prevalence and Impacts of Problem Gambling Amongst Poker Machine Players

There is little doubt that, while poker machines enjoy wide popularity where they are legalised, their presence is accompanied by a proportion of players who experience gambling-related problems. For example, recent research suggests that about 15% of regular poker machine players may have significant personal, financial and family problems arising from their gambling (Dickerson, 1996:163), while Fisher and Griffiths (1995:239) point out that poker machines are now the predominant form of gambling activity by pathological gamblers treated in professional treatment centres and self-help groups in numerous countries. In NSW, a recent survey of treatment services for problem gamblers in Sydney revealed wide acceptance that machine gambling is responsible for loss of control amongst many problem gamblers who present for treatment (Keys Young, 1995). Current estimates identify the prevalence of problem gambling in NSW as 1.0% of the adult population, of whom 50% have poker machines as their preferred form of gambling activity (Dickerson, 1996:164).

Problem gambling is accompanied by various economic and social costs. For example, Dickerson (1993) identifies numerous negative effects of problem gambling which he categorises into individual, interpersonal, employment, economic and legal domains. Individual effects include loss of self esteem and depression; interpersonal effects involve marital and family relationships; effects on employment include loss of productivity and job loss; economic effects include gambling debts; while legal impacts involve illegal acts to support gambling and related legal proceedings. Further insights into these effects are given by a recent study of gambling patterns in NSW (Australian Institute for Gambling Research, 1996). It found that many regular gamblers (those who gambled weekly or more frequently) on non-lottery types of gambling reported gambling for longer than planned (51%), feeling depressed after losing heavily (47%) and trying to win back money after losing (38%). For many, family or friends had criticised their gambling (27%), gambling had become more important than socialising (22%) and their gambling had caused arguments about money with family or friends (18%). Work-related problems included loss of efficiency (8%) and of work or study time (6%). Financially, many reported spending more than they could afford on gambling (35%) and using gambling to try to win money to pay gambling debts (19%). In the legal domain, results of gambling for a minority of regular gamblers were court appearances on gambling-related charges (4%) and misappropriation of money to gamble (4%). There is also evidence of a strong relationship between problematic levels of gambling and hazardous use of alcohol (Australian Institute for Gambling Research, 1996:55). Furthermore, the impacts of gambling-related problems are not confined solely to the individual concerned, with estimates that each case of problem gambling may have an adverse effect on up to ten significant others (Dickerson, Walker & Baron, 1994:41).

In addition to the individual, interpersonal, employment, economic and legal costs of problem gambling identified above, various counselling services incur costs in the treatment of problem gamblers. In Sydney, at least fourteen specialised services employ counsellors and other staff experienced in problem gambling, while a range of general counselling services also provide drug and alcohol, financial or family counselling to problem gamblers and their families. A range of private counselling services is also available (Keys Young, 1996:ii).

While many of the social costs of gambling for gamblers and their families are not readily quantified, the Australian Institute for Gambling Research (1996:12) has estimated the measurable economic and social costs of problem gambling to the NSW community at $48.1 million per annum.

In order to understand why some gamblers persist in the face of severe financial losses which in turn impact negatively on their own lives, and the lives of significant others, and why the incidence of problem gambling amongst poker machine players is relatively high when compared to many other forms of gambling, the ensuing sections review some explanations for gambling in general, and poker machine playing in particular.

3.4 Explanations for Gambling

Research into gambling has proceeded from a variety of academic disciplines, with explanations for gambling and gambling behaviour presented mainly in the historical, public policy, psychological and sociological literature. The purpose here is not to provide a comprehensive review of this extensive body of literature, but rather to summarise the most prominent theories which appear relevant to poker machine gambling.

An Historical Perspective

Gambling is one of the few social activities which has occurred in nearly all cultures and in every period of time (McMillen, 1996b:6). In his history of gambling in Australia, O'Hara (1988) comments that gambling is our "national obsession" and has been an integral part of our

history since the first convicts and settlers gambled with coins, cards and dice. He explains that early European settlers to Australia brought with them the values of traditional Georgian England, the colonies readily adopted the gaming and betting practices of the motherland, and the vast majority of Australian society at that time saw little wrong in gambling. The colonial gentry considered card playing and betting as matters of honour, "as ostentatious displays of both civilisation and contempt for mere money" (O'Hara, 1988:246), while at the other end of the socio-economic spectrum, the lower classes enjoyed few other recreational opportunities apart from gambling and drinking. With few prospects of economic advancement through legitimate means, their circumstances left them little to lose and much to gain by gambling (O'Hara, 1988:246-247). Convicts also played games of chance for food and clothing and, as Cumes (1979:15) notes, "there was a hard core who were gamblers before they became convicts and the hardest core of them all had become convicts because they were gamblers." By the early nineteenth century, life in the colonies was still a gamble for many and relied very much on speculation in one form or another. For example, the early settlers, squatters, drovers and shearers were willing to take their chances and venture into the unknown. Business enterprise was also largely speculative, where "many who obtained wealth, gained it by a throw of the commercial dice" (Inglis, 1985:7). The gambling fever was further fostered on the goldfields and by the commonness, cheapness and attachment to horses which inevitably became the focus of wagering (Inglis, 1985:7). O'Hara (1988) notes that by the end of the nineteenth century, gambling had become entrenched in Australian society and has maintained its popularity partly because of the romanticised and self propagating qualities of the tradition.

Caldwell (1985) argues that our early historical roots have largely shaped contemporary Australian attitudes to gambling. He identifies Australians' sense of fatalism, apathy, and antagonism to "tall poppies" as elements which predispose us to gambling and the tendency to believe that success depends on luck, rather than status, goodness, skill or hard work. Because gambling depends on chance, it is consistent with these beliefs. Australians have long boasted about their resourcefulness, ability to put up with discomfort, and to make do with available resources, and the working and lower class cultures of the convicts and Irish immigrants created an environment which fostered mateship, solidarity, improvisation and resourcefulness. This egalitarian attitude is consistent with the "democratic reward system" offered by gambling (Caldwell, 1985:20).

The types of gambling which have gained popularity and legal status in Australia largely reflect the working class value system. O'Hara (1988) describes how three groups and their values have competed for dominance in Australian society since European settlement - a colonial gentry, a Protestant urban-industrial middle class and a working class. For the colonial gentry, gambling was a harmless activity and a matter of honour. In contrast, the Protestant churches promoted industrial values and moral reform, lobbying for temperance and the removal of the temptation of gambling from the lower classes who were unable to resist it. However in the long term, working class values have prevailed, with gambling providing excitement and the hope of economic advancement amongst those who have few other opportunities. The evolution of the NSW club movement from the elitist establishments of last century to the working class venues today reflect this increasing predominance of such values in the history of Australian gambling.

A Public Policy Perspective

While Australians may be predisposed to gambling for historical reasons, it is only since the 1960s that gambling has been legalised and commercialised "on a grand scale" (McMillen, 1996a:1). With the regulation of gambling in Australia a responsibility of state governments, the influence of public policy has been paramount in the expansion of gambling. McMillen (1996c:4-6) describes three major shifts in public policy relating to Australian gambling, from prohibition, to liberalisation, and then to market stimulation and competition.

The early colonies were marked by the proliferation of illegal gambling, despite attempts by the colonial administrators to curb it. Nevertheless, despite the illegality and heavy penalties for

public gambling, gambling by the colonial gentry in their private clubs was tolerated. Even by the mid-1800s, when horse-racing had become an important recreational activity in both urban and rural areas to the consequent benefit of the proprietary racing clubs, public gaming remained illegal (McMillen, 1996c:4), being considered directly linked to other street crimes, such as vagrancy and prostitution (Caldwell et al., 1988:18).

The 1920s marked the beginning of more liberal government attitudes to gambling. The introduction of state run lotteries for welfare purposes and the legalisation of various forms of minor gaming run by charities and churches meant that gambling gained a new respectability through its association with welfare purposes, further attracting the participation of the middle classes, particularly women (McMillen, 1996c:5). The legalisation of poker machines in NSW registered clubs in 1956 was also justified at the time by the traditional non-profit status, social role and community focus of the clubs (Caldwell, 1972).

Since the 1970s, changes in social attitudes and economic pressures have made gambling more attractive to cash-strapped state governments in facilitating economic growth, and to private investors looking for new market opportunities, ushering in the current period of market stimulation and competition (McMillen, 1996c:5-6). International forms of gambling, such as lotto, pools, keno and casino games have been introduced and state governments have generally taken a more aggressively commercial approach to gambling policies by stimulating private investment in new types of gambling and by encouraging the development of innovative marketing strategies (Caldwell et al., 1988:19). Governments have formed partnerships with local gaming operators to promote gambling and stimulate growth and there is aggressive competition for market share both between and within the various jurisdictions (McMillen, 1996c:5). McMillen (1996c:5) notes that this most recent stage of gambling policy in Australia has been marked by a major shift from government operated gambling to privatisation, replacement of the previous dominance of betting by a rapid growth in gaming, incorporation of gambling into broader government strategies for economic development, and a change in emphasis from social concerns to economic considerations in gambling policy.

Thus, Australia has had remarkably liberal gambling laws and opportunities for legalised gambling since the nineteenth century. Australians have come to expect State governments to both provide and regulate gambling services on their behalf and have tended to believe that if gambling supports a worthwhile charity or pastime, and if it is fairly run, then it is an acceptable activity. All Australian state governments have capitalised on this in order to secure revenues to boost their economies (Caldwell et al., 1988:17). However, this trend has been accompanied by renewed community concerns that the proliferation of legal commercialised gambling creates new social and economic problems and threatens fundamental social values (McMillen, 1996c:5).

A Psychological Perspective

In contrast to the historical and public policy literature which proposes explanations for gambling at the broader community level, psychological explanations of gambling focus on the behaviour and motivations of individual gamblers, particularly those who lose control of their gambling. A brief summary of the major psychological theories of gambling is presented here in chronological order.

Some of the earliest researchers into gambling who discounted the prevailing Puritan view that gambling was motivated by financial greed and the prospect of easy money were Lazarus (1883, in Fuller, 1974) and France (1902, reprinted 1974). Lazarus explained that financial greed was the least important of all motivators for gambling, arguing that pleasure instead derived from the "mental tensity" arising from the suspended activity encountered in all games of chance. In a similar vein, France (1902, reprinted 1974) agreed that the intensity of emotions experienced while gambling was one of the chief incentives to gamble. Furthermore, he argued that such emotions increase the feeling of "reality of self" and that gambling involvement reflects a strong desire for certainty. He suggested that a belief of gamblers in "a guiding

power" which will give them a cue for the result of the gamble, accompanied by an exaggerated assessment of their own skill, leads gamblers to believe they are immune from harm and will ultimately succeed. Thus, Lazarus and France were amongst the earliest researchers to recognise that the enjoyment of gambling might derive from its intrinsic value, rather than simply its potential financial rewards.

However, from the 1920s to the 1950s, a number of scholars began to follow a psychoanalytic approach to gambling, viewing heavy gambling as a sickness, rather than a sin (Walker, 1996:223-224). For example, in 1920, Simnel observed that gambling is regressive infantile behaviour which attempts to obtain desired, erotic satisfaction. Similarly in 1928, Freud also drew on theories of unconscious mechanisms to contribute the notion that excessive gambling is an addiction, a substitute in adult life for the "primary addictive cycle" of masturbation which is often accompanied in childhood by reprimand and punishment by the father and subsequent guilt. In adult life, the unresolved Oedipus complex stemming from these childhood experiences leads to the use of gambling as a substitute form of self-punishment, with the gambler experiencing strong feelings of guilt after losing large sums of money. Bergler (1943; 1975) agreed with Freud that excessive gambling results from Oedipal conflicts and acts as a form of self-punishment for infantile aggression towards the father, arguing that the gambler is a neurotic who, despite having a conscious desire to win, has an even more powerful unconscious desire to lose and be punished. According to Bergler, gamblers are distinguished by six criteria: they habitually take chances, the game precludes all other interests, they are full of optimism and never learn from defeat, they never stop when winning, they eventually risk too much despite initial caution, and they experience "pleasurable-painful tension" during the game. Further psychoanalytical writings continued with Greenson (1947) who considered neurotic gambling to be based on an unconscious attempt to regain the lost infantile feeling of omnipotence by battling with fate. The gambler was on the brink of depression and gambled to ward it off, yet the losses resulting from gambling sustained this cycle of depression.

By the 1950s, efforts to explain the "inner workings" of neurotic gamblers were waning and the psychological literature turned towards behaviourist theories as explanations for gambling (Allcock, 1985:167). For example, Bolen and Boyd (1968), in attempting to differentiate "normal" from "excessive" gamblers, pointed to the conviction of excessive gamblers that they will win, despite evidence to the contrary, and to their reliance on superstition in the form of lucky charms or rituals. They also observed that in nearly all their patients, at least one parent and many of the siblings had been gamblers, and that many pathological gamblers start their "gambling career" with a win. Furthermore, they proposed that Skinner's (1953;1972) principles of behaviour modification through variable reinforcement were evident in poker machine gambling.

In keeping with this interest in gambling behaviour, a number of psychiatrists have proposed typologies of gamblers. For example, Moran (1970) categorised gambling into five sub-groups: symptomatic gambling, associated with mental illness; psychopathic gambling, associated with a generalised behavioural pattern characterising the psychopathic state; neurotic gambling, as a response to problems or conflict; impulsive gambling, characterised by loss of control and craving; and subcultural gambling, arising from a social background of heavy gambling. In contrast, Custer's (1977) typology included social gamblers who gamble for recreation but control their losses, professional gamblers, anti-social gamblers and pathological gamblers. Furthermore, he proposed that the careers of pathological gamblers are marked by an initial winning phase and often a big win, a second phase of progressively losing, and a third "desperate phase", involving larger bets, greater debt and perhaps crime.

In 1980, the American Psychiatric Society officially defined pathological gambling as a mental and emotional disorder, in their *Diagnostic and Statistical Manual of Mental Disorders* (3rd edition) (DSM III). However, more recent studies have moved away from the preceding medical or disease models of excessive gambling, which have been criticised for their over-reliance on clinical cases and insufficient attention to "troublesome appetitive behaviour" in the general population (Orford, 1985:323). In addition, there have been increasing claims that gambling has been wrongly interpreted as an addiction, but is better understood as a leisure

activity which is potentially dangerous when persistence leads to heavy financial loss (Walker, 1996:239). Thus, researchers have increasingly turned to sociological explanations of gambling behaviour. As Walker (1992:8) explains:

> *"the medical model describes a type of gambler who is distinct from other types of gamblers by being compulsive, pathological or addicted, whereas the sociological model describes gambling involvement as continuous from relatively low frequency financially non-dangerous through to high frequency heavy gambling that is financially dangerous."*

A Sociological Perspective

In contrast to the psychological literature which tends to view heavy gambling leading to serious financial losses as a pathological addiction, sociological analyses of gambling, which gained strength in the second half of this century, have presented a more positive explanation of gambling as a legitimate and natural leisure activity (McMillen, 1996b:15).

At the turn of the century, Thomas (1901) argued that the gambling instinct was innate, arising from animal experience that required risk in acquiring food and mates. Because modern business, industrial and professional life lack the spice of contest and its attendant emotional elation, gambling is a means of maintaining these "pleasure-painful" sensations of conflict. Later scholars also subscribed to the view that gambling is a response to a sense of deprivation (Bloch, 1951; Elias & Dunning, 1969; Goffman, 1969; Caldwell, 1972). For example, Bloch (1951) contended that gambling is an escape from routine and boredom, and an outlet for people whose circumstances provide few opportunities for financial success and a variety of new situations. Similarly, Caldwell (1972:161) considers that people gamble because of both psychological deprivation of excitement, uncertainty and risk-taking in everyday life, and sociological deprivation arising from the fierce economic and status competition of modern life where many lack the skills, education, contacts and wealth to succeed.

After the 1950s, a number of researchers ascribed to the view that gambling was a kind of game. The most prominent of these was Caillois (1961) who developed a typology of games, comprising those of competition, chance, mimicry and vertigo. In games of chance, a stake is risked, precise rules are required, there is a reliance on fate and destiny rather than self, and strength, skill, intelligence, work, patience, experience, qualifications, and natural or acquired differences between players are negated. In Caillois' view, people gamble for the fun and pure pleasure of it, for the fascination of acquiring a lot of money all at once with little effort, or in the hope that they will acquire by chance what they have not achieved by merit. In agreement with Bloch (1951) and Caldwell (1972), Caillois argued that gambling provides opportunities for success and excitement in an otherwise regulated existence.

Goffman, in an essay entitled *Where the Action Is* (1967), echoed the sentiment that gambling is a substitute for a lack of psychological and emotional stimuli in modern life. He argued that gambling provides players with an opportunity to seek "activities that are consequential, problematic and undertaken for what is felt to be their own sake" (1969:185) and to demonstrate strength of character and composure and commitment to valued social codes such as risk-taking, courage and honesty (in Lynch, 1985:14; McMillen, 1996b:16). In games of chance, he explained, "a special affective state is likely to be aroused, emerging transformed into excitement" (1967:185). It is this excitement which helps to compensate for the unfulfilling and dysfunctional aspects of ordinary life.

No surprisingly, gambling seems to predominate amongst working classes and relatively disadvantaged groups (Lynch, 1985:15), prompting the notion that hope is a major motivation for gambling. For example, Tec (1964:12) contended that "the hopes for and fantasies for the future which gambling provides may be even more rewarding to bettors than a large sum of money", while Lynch (1990) in a study of poker machine players concluded that "a vocabulary

of hope underlies and is kept alive by the regular poker machine play of working-class patrons"
(1990:189).

Sociologists have also recognised the social value of gambling, with rewards of social interaction and group association. For example, Newman (1972) argued that for most gamblers in his study of East London betting shops, gambling was a rational activity, pursued for reasons of social and cultural integration. Hayano (1982) and Martinez (1983) have also recognised that the gambling scene forms a subculture which fosters friendly social interaction, dependent on the degree to which individuals conform to, or violate, the distinctive formal and informal group norms. Similarly, Rosecrance (1985; 1988) found that regular bettors on horse-racing persisted because the perceived rewards of social interaction, sensory stimulation, potential financial gain, decision-making opportunities and demonstration of character outweighed the perceived costs. For casino players, Ocean and Smith (1993) have argued that the casino provides an "inside world" which is comforting and socially rewarding, in contrast to an inhospitable "outside world" characterised by conflict and crisis (1993:337).

In reviewing the range of sociological explanations for gambling, McMillen (1996b:17) provides the following useful summary:

> Drawing on a range of theoretical perspectives, sociologists have suggested that gambling functions both as recuperative 'adult play' or as an escapist 'safety valve' from the burden of work (Herman 1967; Devereux 1968a); as 'deviant adaptations' to anomie (Martinez 1983) or to alienation (Downes et al. 1976:72-75); as an integral element of working-class culture which seeks to overcome lack of success and security (Dennis et al. 1956; Herman 1976; Zola 1967 [1963]); as an outlet for gamblers to test chance and skill (Oldman 1974; Campbell 1976); and as an effective opportunity for self-realisation and creativity lacking in the workplace (Goffman 1967; Bloch 1957; Smith and Preston 1984). The attraction of contemporary gambling and the commitment of regular gamblers even in the face of consistent losses have been explained predominantly in terms of the rewards gained from social interaction and group association (D'Angelo 1985; Hayano 1982; Martinez 1983; Rosecrance 1985a, 1986a, 1986b, 1986c, 1988a:53-87)."

3.5   Reasons for Playing Poker Machines

While many possible reasons for playing poker machines are evident in the explanations proposed for gambling in general, this section will review the limited studies which have been conducted into explanations for poker machine playing in particular, with a division between reasons for playing poker machines, and reasons for persistence in the face of significant financial losses.

Reasons for Play

One of the earliest researchers into various aspects of NSW clubs was Caldwell (1972), who surveyed members of one large leagues club regarding their poker machine playing. About half the respondents who had played poker machines gave their main reason for playing as "amusement" (49.6%), followed by "winning money, not necessarily jackpots" (35.7%) and then "winning jackpots" (14.7%). Similarly, in a survey of 398 poker machine players at a large ACT social club, Dickerson, Fabre and Bayliss (1985) found that most players viewed their machine gambling as "entertainment" (60.8%) or as being "sociable" (60.8%), although "to win money" was an important reason for some (37.6%), with less important reasons being "to make a big win" (13.2%), for "something to do" (9.5%) and "to forget troubles" (9.5%) (multiple responses allowed). In a more recent survey conducted in Victoria (DBM Consultants, 1995), the most common reasons given for playing poker machines by the 1,076

players surveyed were for "social reasons/see friends" (48%), "thrill/dream/reward of winning" (30%), "atmosphere/excitement/gives a buzz" (18%), "boredom/pass the time" (12%), "belief in luck/may get lucky" (7%) and "favourite recreational activity/hobby" (6%). The notion of playing poker machines for escape has also been noted by Lynch (1985; 1990) who, in a qualitative study of 21 regular poker machine players at a Sydney RSL club, concluded that "the commonly reported motives of relaxation, a temporary 'switch-off' and escape suggest that poker machine playing is a response to their reportedly difficult day-to-day experiences" (1990:204). Daley (1987) has suggested a somewhat different motive, explaining that poker machine players are "buying time" and that the purpose of this time might be leisure, social involvement, escapism or relaxation. Dickerson (1996) has further analysed reasons for poker machine play amongst low/medium frequency, high frequency and problem players, with the former category playing mainly "for entertainment" and "to be sociable", and the latter two categories playing "to forget troubles" and "to win a major pay-out" (1996:159).

From this limited number of empirical studies, it appears that there are a variety of motives for playing poker machines, which vary from the intrinsic leisure and entertainment value of the play itself, to the external rewards of social interaction and winning money, to its value as a diversion from a routine, boring or difficult day-to-day life. However, it is also apparent that these motives may vary between players with different levels of poker machine gambling involvement. The next section investigates some factors which have been proposed as influencing the degree of involvement in poker machine gambling.

Reasons for Persistence

The more often people play poker machines, the more likely they are to report aspects of losing control, such as spending more time and money than they had planned, or more money than they can afford (Dickerson, Fabre & Bayliss, 1985; Corless & Dickerson, 1989). However, because there is not an inevitable progress from lower to higher levels of involvement (Dickerson, 1996:161), researchers have searched for reasons to explain why some players lose control of their poker machine gambling. These explanations can be loosely categorised into cognitive and behavioural reasons.

Cognitive explanations of heavy gambling assume that the gambler holds a set of invalid or irrational beliefs which are maintained in poker machine play by biased interpretation of the evidence (Walker, 1992:72). Thus, even though an objective view of poker machine playing would lead players to expect to lose, heavy gamblers may believe that they, through logic or special insight, can make money, discounting their losses as caused by factors beyond their control, but explaining their wins in terms of their special system or knowledge (Walker, 1992:72). Walker (1992:73) cites players' testing of machines with a few coins to avoid those which are "cold" or "hungry" to find one which is "paying", that players talk to machines to encourage them to pay, and that people have favourite machines which they zealously guard from other players, as evidence of irrational thinking amongst poker machine players. Indeed, Ladoucer and Gaboury (Gaboury & Ladoucer, 1988; Ladoucer & Gaboury, 1988) found that 70% of the verbalisations of ten poker machine players who were required to say aloud what they were thinking while playing the machines were irrational. This finding was later replicated by Walker (1989; 1990), who also found that higher levels of irrational thinking were exhibited by those players for whom poker machines were their preferred type of gambling (in Walker, 1992:74). Walker (1992:74) explains that irrational thinking amongst poker machine players can relate to the gambler's fallacy (a loss one time means a win is more likely the next time), personification of the machine and illusions of player control. Dickerson (1996:162) also notes that a win on a machine after a player has decided to persist despite significant financial losses, or a win which coincides with the player's belief that the machine is about to pay out, may strengthen such irrational thinking.

Behavioural aspects of poker machine play have been investigated in a number of studies by Dickerson, a major one of which involved 64 high, medium and low frequency players (1991). He has concluded that impaired control of poker machine play is affected mainly by learning

such that frequent players build up "stereotypic" rates of play which are responsive in different ways to big and small wins, with small wins increasing this rate amongst all three groups of players but with this increased rate maintained for longer amongst the high frequency group; and by negative moods, such as depression and frustration. In contrast, low frequency players were less likely to play the machines if they were feeling disappointed or frustrated. Importantly, more frequent players persisted for longer sessions of play and played at a faster rate (Dickerson, 1996).

3.6 The Potential of Contemporary Poker Machines for Encouraging Problem Gambling

The preceding section has focused on what might be termed the internal determinants of poker machine play, that is, those factors relating to the degree of involvement by individual players. In addition, there are external factors which help to explain the popularity of poker machines and their potential for loss of control by some players. These include the nature of the game itself, the environment in which they are played and the aggressive marketing and expansion strategies used by many NSW clubs in their poker machine gaming operations. These factors will be discussed in turn.

The Nature of Poker Machine Games

One of the distinguishing features of poker machines is that they offer games of pure chance Caldwell has described poker machine play as the "epitome of non-skill gambling" (1974:16), "a purely mechanical task" (1985:263), where "the banker, the Cabinet Minister, the housewife, and labourer are all equals ... for skill and experience count for nothing" (1974:69). Furthermore, he suggested that the high value Australians place on equality and fatalism partly explains "why Australians have a predilection for gambling and why the form of gambling is marked by a heavy reliance on chance and so little on skill" (1974:20). Orford notes the prejudice against games of chance in favour of games of skill "not infrequently betrayed by those who write on the subject of immoderate gambling" (1985:30). One of the reasons for such prejudice may be that the non-skill nature of poker machines readily attracts new players due to "the initial perception that the likelihood of winning on the randomly generated outcomes of the machine permits the novice to start on an equal footing with the experienced player" (Dickerson, 1996:158).

Certain structural characteristics particular to poker machines have also been proposed for inducing both initial and continued play. For example, while acknowledging that certain biological, psychological and situational variables are also influential, Fisher and Griffiths (1995:241) identify "frequent pay out and event intervals, arousing near miss and symbol proportions, multiplier potential, bettor involvement and skill, exciting light and sound effects, and significant naming" as having an important role in influencing a player's decision to play and continue playing poker machines. To this list, Fabian (1995:253) adds the rapid gambling sequence and short pay out intervals, the wide variety of stakes and chances of winning, the attractive relation between the probability of winning and the amount of winnings, the number of small winnings, the active involvement of the gambler in the course of the game, and the low stakes involved.

A number of writers have commented on the structural characteristics of machine gaming which enhance operant conditioning of players (for example, Bolen & Boyd, 1968; Stotter, 1980; Walker, 1992; Dickerson, 1996). Probably the most thoughtful account of this is given by Stotter (1980), who contends that "never before" have the principles of behavior modification "been brought together and applied so expertly as in the Poker Machine" (1983:161). Stotter (1980:162-163) explains that the act of placing money in the machine is firstly reinforced by an intermittent reinforcement schedule in the form of irregular payouts, which is a powerful

method of conditioning, far stronger than fixed interval conditioning. Secondly, the intermittent reinforcement schedule is further enhanced by varying the strength of the reinforcer in the form of prizes of varying amounts, with the possibility of large rewards, or jackpots, helping to maintain play over a longer time period, making the behaviour more resistant to extinction. Thirdly, the player is never submitted to a feeling of immediate failure, as it is the combination of numbers or symbols which determine a win, rather than their actual occurrence. As all numbers and symbols have the potential to contribute to a winning sequence, the sense of loss is minimised, with the player subjected instead to a "near miss". Fourthly, accompanying lights, musical tones and immediate cash drops into a noise-enhancing metal tray maximise the rewarding qualities of a win. Finally, the winner receives substantial social reinforcement from other players whose attention is gained by the noise and lights, with the winner becoming the "centre of attraction" (1980:163) for a short period of time. Indeed, while acknowledging the entertainment value of poker machines, Stotter (1980:164) contends that "there appear to be important ethical questions to be answered as to where the entertainment component ends and the straight out conditioning of human behaviour for monetary gains begins." Furthermore, with player persistence being the major aim of poker machine manufacturers in the development of new games and characteristics (Daley, 1986), Dickerson (1996:163) is rightly concerned that such developments increase player persistence and thereby increase gambling-related problems among machine players.

Environmental Factors

In addition to the structural features of poker machines, certain environmental factors which enhance the attraction of poker machines have been noted. Firstly, particularly in NSW, poker machines are widely accessible to the potential population of users (Caldwell, 1972:171; Stotter, 1980:160; Dickerson, 1996:154), with this access facilitated through the machine's compact and transportable design and its simplicity of use (Tasmanian Council of Social Services, 1992:26). Furthermore, people are exposed to the machines in an environment where many seek recreational opportunities and are offered significant inducements for patronage, such as cheap meals and drinks (Committee for the Inquiry into the Impacts of Gaming Machines in Hotels and Clubs in South Australia, 1995:38), combined with attempts by clubs to increase player participation by purchasing the latest types of machines, increasing players' percentage returns from the machines, holding frequent and innovative poker machine promotions and improving the physical environment in gaming areas (Hing, 1996). Caldwell (1972:171-174) has also noted the casino-type atmosphere, particularly in large and crowded club gaming rooms, where the noise and lights contribute to the excitement. Dickerson (1996:157) comments further that "although the timeless divorce from reality achieved in contemporary theme casinos in Las Vegas may not be achieved", club poker machines are typically in large, purpose built rooms increasingly advertised as "casino" areas, which often have no exterior windows and are open for long hours.

Thus, the structural characteristics of poker machines and the environments in which they are played help to explain the attraction of poker machines and their popularity both in NSW and in other jurisdictions where they have been legalised. In terms of diffusion theory which has been used to explain the pace at which individuals adopt new forms of gambling and the rate at which gambling diffuses throughout a society (Cook & Yale, 1994), the widespread participation in machine gaming in NSW has been enhanced by the ease with which the machines can be observed, tried, used and accessed, as well as their compatibility with other traditional leisure activities found in registered clubs.

Marketing and Expansion Strategies in Poker Machine Gaming

Many NSW clubs have increasingly adopted aggressive marketing and expansion strategies in their machine gaming operations. These strategies have included increasing the number of gaming machines, ongoing replacement programmes to keep machines up to date, diversifying game types and player options, raising maximum bet limits and prize money, increasing player

percentage returns from the machines, undertaking extensive gaming machine promotions, and improving the physical facilities and range of services available where the machines are played.

Since their legalisation in 1956, there has been a tenfold increase in the total number of poker machines in NSW clubs. This represents an increase from an average of 5.8 to 43.2 machines in each club operating poker machines over a forty year period. However, average per capita expenditure per poker machine has declined since the mid-1970s (NSW Dept. of Gaming & Racing, 1996a), prompting greater efforts by many clubs to encourage patronage and machine play.

The longevity of machine gaming in NSW clubs has nurtured a relatively mature market for poker machines, with the predominantly local, regular players being more demanding and discerning than a tourist market which plays poker machines far less frequently (Kelly, 1996c:58). Kelly (1996c:58) contends that collectively, Australian gaming machine manufacturers lead the way in machine technology, each often developing ten to twelve new games per month to ensure players are "stimulated by new and innovative options". Thus, with the "productive life" of a machine in Australia estimated at between three and five years (Kelly, 1996c:58), most NSW clubs undertake extensive and ongoing machine replacement programmes to ensure their machines remain up to date, with the Registered Clubs Association of NSW (1994:55) recommending that a minimum replacement of 25% of a club's poker machines per year is required to meet the technological advances and game enhancements continually being introduced to the marketplace.

Player persistence is the major aim of poker machine manufacturers in developing new games and game characteristics (Daley, 1986), with many new features designed to also increase both the rate of play and the average bet. Verrender (1996:39) notes that there are currently up to 30 game variations available in NSW club poker machines, with features such as multi-line and multi-coin betting, tokenisation, note acceptors, touch screen operation, linked machines, multi-game machines, cashless betting, animation and interactive games (Kelly, 1996a; 1996c). Such technological developments continue to drive machine replacement programmes in clubs, with manufacturers and operators both working towards achieving the same gaming machine objectives, "namely the maximization of turnover and net profit" (Kelly, 1996a:44).

In the last fifteen years, lobbying from both the club industry and gaming machine manufacturers has been successful in raising the maximum bet and prize money on poker machines. For example, in 1982, manufacturers submitted successful requests to licence both multi-coin and multiplier machines which offered jackpots of up to $5,000 (NSW Dept of Gaming & Racing, 1996b:v). In 1986, the maximum jackpot for stand-alone machines was raised to $10,000, while in 1988 $1 and $2 machines were introduced and the maximum bet raised to $10 per play, regardless of denomination (NSW Dept of Gaming & Racing, 1996a:5). In-house link progressive jackpot systems with jackpots up to $100,000 were introduced in 1988, while the most recent legislative change (Liquor and Registered Clubs Legislation Further Amendment Act 1996 NSW) has legalised statewide inter-club links, thus allowing million dollar jackpots.

Increasing player percentage returns from the machines above the 85% required by law (Registered Clubs Act 1976 NSW) is a further apparent trend to increase the appeal of poker machines, with the current return to players averaging 90.4% over all NSW clubs in the 1994-95 fiscal year. This has increased from an average of 90.0% in 1993-94, 87.6% in 1992-93 and 86.9% in 1991-92 (NSW Dept of Gaming & Racing, 1996a:12). Daley (1987) has suggested that poker machine players are "buying time" and that, given limited financial resources, they choose machines in a way which maximises their playing time, thus making machines with higher player returns more attractive. However, while the increased popularity of lower denomination machines (NSW Dept of Gaming & Racing, 1996a:4) may represent the actions of some players to extend their playing time, the popularity of multi-line machines which reduce average playing time by 50% (Daley, 1987:239-240) suggests that "buying time" may not be a primary motivator for some players. Nevertheless, Lynch (1985:61-62) found that a common complaint amongst the regular poker machine players he interviewed was the

"tightness" of the machines, with some players noting that increasing player returns would encourage more players, provide an incentive for them to play for longer, and that they would probably put the increased winnings back into the machines anyway.

In addition to stimulating poker machine play through continual changes to the machines themselves, many NSW clubs undertake extensive promotions to both attract players and reward high spenders. Such promotions include complimentary tickets for meals or entertainment when a certain level of poker machine change is purchased, vouchers for coin purchases redeemable for prizes or for entry into a draw to win a major prize, computer linked promotions, and player tracking whereby the expenditure of individual players is monitored and rewarded if sufficiently high. A KPMG survey of 157 NSW clubs (1995:12) found that each spent up to about 7% of poker machine profits on in-house poker machine promotions, with the highest expenditure by those clubs which have the greatest reliance on poker machine profits.

Because clubs cannot distribute any profits, many NSW clubs use surplus revenue to improve the physical facilities and range of services available where poker machines are played. Many properties are experimenting with themed environments in gaming areas which are seen to provide "an added value service in mature gaming markets" (Kelly, 1996a:44-45). Additional services such as call buttons on machines for purchasing drinks and payment of manual jackpots, free tea and coffee, and projection of other entertainment in the club onto large screens in poker machine areas all represent attempts to keep patrons playing the machines.

In summary, many NSW clubs, as well as the poker machine manufacturers, have embarked on aggressive marketing strategies designed to attract more players, increase player persistence and reward high expenditure. While continued growth in club poker machine expenditure suggests that such strategies have been successful from an economic standpoint, such strategies would also seem likely to increase the incidence of problem gambling amongst poker machine players.

3.7 Socio-Demographic Characteristics of Problem Gamblers and Poker Machine Players

In recent years, numerous studies have been conducted into the prevalence rates and socio-demographic characteristics of problem gamblers in a variety of Australian and overseas jurisdictions. Table 1 identifies the prevalence rates and associated details from studies conducted in those states and countries for which data on problem gambling using the SOGS instrument are available.

Table 1
Prevalence Rates of Problem Gambling in the US, Canada, Spain and Australasia Using the SOGS Instrument

Year	Country/State	Researcher	Lifetime Prevalence[a]	Current Prevalence[b]
1986	**United States** New York	Volberg & Steadman	4.2 (1.4) [c]	-
1988	New Jersey	Volberg	4.2 (1.4)	-
1988	Maryland	Volberg	3.9 (1.5)	-
1989	Massachusetts	Volberg	4.4 (2.3)	..
1989	Iowa	Volberg	1.7 (0.1)	-
1990	California	Volberg	4.1 (1.2)	-
1990	Minnesota	Laundergan et al.	-	-
1991	Connecticut	Christiansen/Cummings	-	1.5
1991	Montana	Volberg	6.3	-
1991	Sth Dakota	Volberg & Silver	3.6	2.2
1992	Nth Dakota	Volberg	2.8	1.4
1992	Texas	Volberg & Stuefen	3.5	2.0
1992	Washington State	Wallisch	4.8	2.5
			5.1	2.8
1989	**Canada** Quebec	..		
1992	New Brunswick	Ladoucer	3.8 (1.2)	-
1993	Nova Scotia	Baseline Market	-	4.5 (1.4)
1993	Alberta	Omnifacts Research	-	4.7 (1.7)
1993	Saskatchewan	Smith et al.	-	5.4 (1.4)
		Volberg	4.0 (1.2)	2.7 (0.8)
1991	**New Zealand** National survey	Abbott & Volberg	6.9 (2.7)	3.3 (1.2)
1992	**Australia** National	AIGR[d]	1.77[e]	1.16[e]
1996	NSW	AIGR	-	1.1 (0.5)
1990	**Spain** Catalonia	Cayeula	2.5	-
1992	Seville	Legarda et al.	6.9 (1.7)	-
1994	Galicia	Becona & Fuentes	3.4 (1.4)	-

[a] Lifetime prevalence refers to the combined percentage of the population who are identified as problem and pathological gamblers, identified by a SOGS score of 3 or 4, and a SOGS score of 5 or over respectively, where questions typically start "at any time in the past...".

[b] Current prevalence refers to the combined percentage of the population who are identified as problem and pathological gamblers, identified by a SOGS score of 3 or 4, and a SOGS score of 5 or over respectively, where questions typically start "In the past 6 months...".

[c] Numbers in brackets equal the percentage of pathological gamblers in the population, identified by a SOGS score of 5 or over.

[d] Australian Institute for Gambling Research

[e] Original estimates using a cut-off of 5 or more on the SOGS instrument, were 7.07% for lifetime prevalence and 13.39% for current prevalence. However, both figures were reduced by a factor of 4 to account for the number of false positives, while lotto only gamblers were removed from the current prevalence estimates which were then based on a SOGS score of 10 or over (Australian Institute for Gambling Research, 1995:135-136).

From Table 1, the prevalence rates for problem gamblers as measured by a SOGS score of 3 or more fall between about 1% and 5% of the adult population. Naturally, prevalence rates are affected by factors such as the types, longevity and accessibility of legalised forms of gambling in each jurisdiction, as well as the demographic and ethnic profiles of the populations under study. While the Australian figures provided by the Australian Institute for Gambling Research (1995; 1996) indicate a comparatively low level of problem gambling for both the national and NSW samples, it must be noted that these figures have been adjusted for false positive responses on the SOGS, as well as higher cut-off scores. Indeed, unadjusted prevalence rates in Australia for those scoring 3 or more on the SOGS are 22.3% of the adult population in NSW, 5.1% in Tasmania and 6.3% in Western Australia. Unadjusted prevalence rates for those scoring 5 or more on the SOGS are 8.1% of the adult population in NSW, 1.0% in Tasmania and 3.4% in Western Australia (Australian Institute for Gambling Research, 1996:52). Thus, as noted by the Australian Institute for Gambling Research (1996:56):

> "When the present results for NSW are placed in the context of other internationally published results, they are the highest recorded. ...Just as NSW in 1993-94 gave the highest percentage of household disposable income spent on gaming and wagering compared with all other states in Australia, so too does Australia have the highest per capita spend on gambling than any other developed country. Thus, in NSW, given the level of expenditure and the availability of a wide range of gaming and wagering products, it is to be expected that the negative impacts on individuals and families would be higher than in other jurisdictions."

In addition to measuring the prevalence rates of problem gambling, many of the studies cited in Table 1 have also attempted to identify particular socio-demographic characteristics associated with problem gamblers. For example, in a review of prevalence studies of problem gambling in 15 US jurisdictions, Volberg (1996) noted that problem and pathological gamblers were more likely to be male, not married, under the age of 30, non-Caucasian, have annual incomes under $25,000 and be less likely to have graduated from high school. Socio-demographic profiles in Canada (Ladoucer, 1996) also characterise problem and probable pathological gamblers as male, under the age of 30, unmarried, with an income under $30,000 and only high school education, although there are some small variations in these profiles between different provinces. A national survey of gambling and problem gambling in New Zealand (Abbott & Volberg, 1996) found that the characteristics of those most at risk of gambling-related problems were male, aged below 30 years, unemployed, not married and of Maori or Pacific Islander descent. In Germany, Holland and Spain, at least half of pathological gamblers are under the age of 30 (Becona, 1996), while in an Australian national survey (Australian Institute for Gambling Research, 1995), the majority of problem gamblers were found to be 19 to 29 year old males who prefer gaming machines or off-course betting. In NSW, a recent survey (Australian Institute for Gambling Research, 1996) found that increasing risk of gambling related problems is associated with: 1) younger, single males, preferring gaming machines or racing; 2) individuals with incomes less than $20,000 per year; and 3) the retired or unemployed.

While there are clearly some common socio-demographic characteristics amongst the problem gamblers surveyed in the studies discussed above, little research has been conducted into the characteristics of problem poker machine gamblers, particularly amongst members of NSW registered clubs where the machines proliferate, have a long history and are widely accessible. However, as Abbott and Volberg (1996:157) note, "track betting and gaming machines are the specific varieties of gambling most consistently and strongly linked to problem and pathological gambling" and so it may be expected that the characteristics of problem poker machine gamblers resemble those of problem gamblers in general.

Section Four

Methodology

The purpose of this stage of the study was to compare by selected socio-demographic characteristics the poker machine playing behaviour of members of large Sydney registered clubs and to identify the prevalence and associated socio-demographic characteristics of problem gamblers, both for gambling in general and poker machine playing in particular, amongst this population. This then allowed comparisons to be made with the prevalence and characteristics of problem gamblers identified by prior research. This section outlines the methodology used to address these objectives.

4.1   Study Sample

Of the top thirty clubs in NSW by poker machine profits (NSW Dept. of Gaming & Racing, 1996), twenty-five are located in Sydney. The researchers gained the cooperation of six of these twenty-five clubs and authority to survey a sample of their members. 3,000 members in total participated in the survey, selected randomly from a total of about 190,000 members of the participating clubs. However, the sample was restricted to those members who resided in Sydney. For reasons of confidentiality, the identities of the participating clubs are not revealed, nor are data presented for individual clubs in this report.

4.2   Data Collection

Reark Research, a Sydney-based marketing research company, was commissioned to conduct the survey by telephone during November and December 1996. The telephone interviews with each respondent took about 20 minutes to complete and addressed five main areas:

- patronage of registered clubs, participation in various club-based activities and preferred leisure activities;

- gambling preferences and frequency of participation in 13 major types of gambling:

  - Lotto/instant lottery/lottery/pools
  - bingo/housie at a club
  - bingo/housie not at a club
  - club keno
  - club poker machines
  - TAB betting at a club
  - TAB betting not at a club
  - on-course betting
  - casino poker machines
  - casino table games
  - casino keno
  - hotel gaming machines
  - private gambling

- the South Oaks Gambling Screen (Lesieur & Blume, 1987) to measure problem gambling in general (see below);

- poker machine playing behaviours, including usual venue, usual company, reasons for play, preferred types of machines, time and money spent playing, likely expenditure of jackpots, and belief in luck/skill;

- the South Oaks Gambling Screen (Lesieur & Blume, 1987) to measure problem gambling related specifically to poker machine gambling (see below);

- socio-demographic characteristics of the respondent based on categories used in the Australian Bureau of Statistics (ABS) Census, including age, gender, marital status, dependent children, housing status, education, employment status, occupation, personal and household income, main source of income, country of birth, father's and mother's country of birth, main language spoken at home other than English, and Aboriginal or Torres Strait Islander descent.

The questionnaire used in the survey is included in Appendix A.

4.3   The South Oaks Gambling Screen (SOGS)

The SOGS (Lesieur & Blume, 1987) is the only internationally established measure of pathological gambling validated against the Diagnostic and Statistical Manual (edition III-R) (American Psychiatric Association, 1987). It is a 20 item questionnaire requiring yes/no responses to a series of questions, with total scores determined by summing the number of yes responses. According to Lesieur and Blume (1987:1186), a score of 5 or more on the SOGS indicates probable pathological gambling, although scores of 3-4 have been used to designate problem gamblers whose problems are not as severe as those scoring 5 or more (Volberg & Steadman, 1988; Ladoucer, 1991; Abbott, & Volberg, 1992; Legarda, Babio & Abreu, 1992; Volberg, 1993a; Becona & Feuntes, 1994). However, some Australian studies (Australian Institute for Gambling Research, 1995; Delfabbro & Winefield, 1996) have used a cut-off score of 10 on the SOGS to designate probable problem gamblers, arguing that this identifies a group of gamblers whose weekly expenditure on gambling is similar to that reported in published work for pathological gamblers in Australia, as well as guarding against false positive responses to questionnaire items. That is, it is argued that respondents scoring 10 or more on the SOGS are very unlikely *not* to be problem gamblers (Australian Institute for Gambling Research, 1996:51).

In order to clarify the matter, the researchers contacted Henry Lesieur who recommended the use of 5 as the cut-off for probable pathological gamblers, based on his research of 1,616 individuals from gambling-specific treatment services, Gamblers Anonymous, alcohol and drug treatment services, hospital employees, and university students. He also noted that a study currently in progress at Harvard Medical School has verified the epidemiological accuracy of the use of 5 or more. Thus, the cut-off score of 5 or more was retained for this study to identify probable problem gamblers.

Another issue of some contention in the use of the SOGS has been whether to use a lifetime prevalence measure or a current prevalence measure. The former aims to measure pathological and problem gambling at any time during a person's lifetime, with questions typically starting with "at any time in the past...", whereas the latter aims to measure pathological and problem gambling during the last six months, with questions typically starting with "in the past 6 months...". As Table 1 shows, prior studies have variously used either or both measures. It was decided to use the current prevalence measure in this study, to allow meaningful comparisons with prevalence rates identified in prior Australian studies. In addition, a knowledge of current prevalence was deemed to be more useful than lifetime prevalence for the third stage of this study which will investigate the current and future adequacy of services for problem gamblers from populations identified as most at risk in Sydney.

Two measures of problem gambling have been used in this study. The first relates to gambling in general and used the SOGS in its original form ("general SOGS"). The second measure relates specifically to gambling on poker machines, with the SOGS questions adapted accordingly ("poker machine SOGS"). For example, the original question "Did you ever gamble more than you intended to in the last 6 months?" was changed to "Did you ever gamble on poker machines more than you intended to in the last 6 months?". The remaining items in the SOGS were adapted in a similar fashion.

4.4 Analytical Techniques

The data in this report have been analysed using non-parametric tests, predominantly cross-tabulation and chi-square. This was necessary as the majority of variables are categorical, including the two main dependent variables - the general SOGS and the poker machine SOGS. Cross-tabulation is a combination of two or more frequency tables arranged such that each cell in the resulting table represents a unique combination of specific values of the cross-tabulated variables. It is a simple method used to examine frequencies of observations which belong to specific categories on more than one variable. However, although simple cross-tabulation is a first step in studying the relationship between two or more variables, it does not allow for quantifying or testing of that relationship. Therefore, the Pearson chi-square is used to test the hypothesis that the row and column variables in the cross-tabulated table are independent. If the observed significance level of the test is ≤ 0.05, then the hypothesis that the two variables are independent is rejected. This implies that there is a statistically significant association between the two variables. In this study, significance levels are reported at three levels - $p \leq .001$, $p \leq .01$ and $p \leq .05$.

While more complex multivariate techniques such as loglinear modelling can be used to test for interactional effects of the variables used in cross-tabulation, its use is limited by the small number of variables which can be analysed simultaneously (up to 10) and the need to collapse categories within variables with the subsequent loss of meaningful detail in the results.

In the few instances where variables were metric, such as time and money spent on poker machine playing, T-tests were used to test for differences between mean duration and expenditure between non-problem (SOGS score < 5) and probable problem gamblers (SOGS score 5 +).

The detailed statistical output from which the research results have been drawn is available from the authors upon request.

4.5 Presentation of the Results

The results of the study are presented in the following four sections of this report:

• Section Five focuses on the entire sample of 3,000 club members surveyed and compares the socio-demographic characteristics, club patronage, participation in club-based activities and leisure preferences of poker machine players and non-poker machine players.

• Section Six focuses on the 2,430 respondents in the sample who participate in at least one of the 13 forms of gambling listed earlier. It describes their frequency of participation in these types of gambling, the incidence of problem gambling using their general SOGS scores and the frequency of gambling-related problems amongst these respondents. It also presents a comparison between problem and non-problem gamblers

in this sub-sample based on their socio-demographic characteristics, club patronage, participation in club-based activities, leisure preferences and gambling activities.

- Section Seven focuses on the 1,879 respondents in the sample who play poker machines. It describes their poker machine playing behaviour, the incidence of problem gambling associated with poker machine play using their poker machine SOGS score, and the frequency of poker machine gambling-related problems amongst these respondents. It also presents a comparison between problem and non-problem poker machine gamblers in this sub-sample based on their socio-demographic characteristics, club patronage, participation in club-based activities, leisure preferences, gambling activities, and poker machine playing behaviour.

- Section Eight discusses the main research findings and their implications.

Section Five

Characteristics of Poker Machine and Non-Poker Machine Gamblers Amongst Club Members

This section presents the survey results for the entire sample of 3,000 club members. In presenting these results, the sample has been divided into "poker machine players" and "non-poker machine players", based on their responses to question 9 of the questionnaire (Appendix A).

5.1 Gambling Participation Amongst Club Members

As shown in Figure 1, more than four-fifths of the club members gamble in some way (2,430 respondents), with the majority of these (1,879 respondents) gambling on poker machines. Only 570 respondents do not gamble at all, representing less than one-fifth of the sample. Relatively few club members gamble only on Lotto-type games (256 respondents), while a similar proportion gamble on other forms of gambling except poker machines and solely Lotto-type games (295 respondents).

Figure 1
Distribution of Non-Gamblers, Lotto Only, Poker Machine Gamblers and Other Gamblers
N=3,000

Non-Gamblers 19.0%

Lotto-Only 8.5%

Other Gamblers 9.8%

Poker Machine Gamblers 62.6%
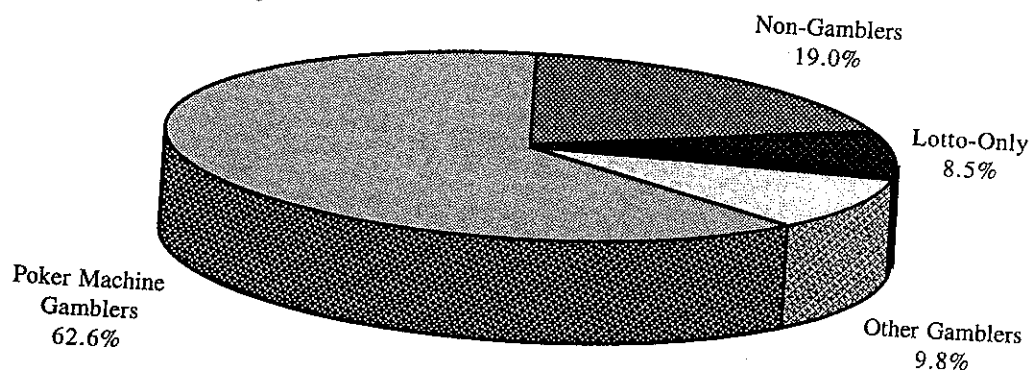
5.2 Demographic Characteristics of Club Members by Poker Machine Gambling Category

Table 2 presents a cross-tabulation of poker machine gambling category (poker machine players and non-poker machine players) by sex, age group and highest educational qualification attained. (In this and all following tables, only percentages in those cells with 5 cases or more are shown. Significant relationships are marked by asterisks, with the corresponding values shown at the foot of each table.)

Table 2
Demographic Characteristics of Poker Machine and Non-Poker Machine Gamblers

Characteristic	Poker Machine Players N=1879 %	Non-Poker Machine Players N=1121 %	Total Club Members N=3000 %
Sex:			
Male	58.1	58.1	58.1
Female	41.9	41.9	41.9
Age:*			
15-19 years	2.4	1.7	2.1
20-24 years	9.3	5.2	7.7
25-29 years	7.3	2.8	6.0
30-34 years	8.3	7.1	7.9
35-39 years	9.4	11.3	10.1
40-44 years	11.7	11.7	11.7
45-49 years	13.4	14.0	13.6
50-54 years	11.9	12.9	12.3
55-59 years	7.7	7.8	7.7
60-64 years	6.4	8.0	7.0
65-69 years	5.0	6.4	5.5
70-74 years	4.6	5.9	5.1
75-79 years	1.7	2.2	1.9
80 years and over	0.8	1.5	1.2
Refused	-	-	0.2
Education:**			
No qualification	8.3	8.7	8.5
School Certificate	34.4	29.2	32.4
Higher School Certificate	17.9	15.5	17.0
Trade/vocational qualification	18.1	18.5	18.2
Undergraduate/associate diploma	8.0	9.9	8.7
Bachelors degree	9.0	11.6	10.0
Postgraduate diploma	1.3	1.8	1.5
Postgraduate degree	2.0	3.4	2.5
Don't know	0.2	0.4	0.3
Refused	-	-	0.9

*** significant at p ≤ .001   ** significant at p≤ .01   * significant at p ≤.05

Sex by Poker Machine Gambling Category

As shown in Table 2, about three-fifths of the sample of club members are male and about two-fifths are female. However, a comparison of the proportions of males and females who play poker machines shows that there is no difference between the sexes, with the proportions of

poker machine players exactly equal. That is, there is no significant association between sex and poker machine gambling category.

Age by Poker Machine Gambling Category

Results of the chi-square test indicate that there is a significant association between age group and poker machine gambling category ($X^2 = 49.9$; df = 15; p ≤ .001), as shown in Table 2. Higher proportions of poker machine gamblers than non-poker machine gamblers are aged 15 to 34 years, while lower proportions of poker machine gamblers are aged 40 years and over. About three-quarters of 15-29 year olds, two-thirds of those aged 30-34 years and three-fifths of those aged 35-39 years play poker machines.

Education by Poker Machine Gambling Category

Results of the chi-square test indicate that there is a significant association between the highest educational qualification attained and poker machine gambling category ($X^2 = 24.2$; df = 9; p ≤ .004), as shown in Table 2. Higher proportions of poker machine gamblers than non-poker machine gamblers have a School Certificate or Higher School Certificate as their highest educational qualification, while lower proportions of poker machine gamblers have no qualification, a trade/vocational qualification, or no tertiary education. About one-third (34.4%) of poker machine players are educated to School Certificate level compared to 29.2% of non-poker machine players, while a further 17.9% of poker machine players are educated to Higher School Certificate level compared to 15.5% of non players.

Table 3 presents a cross-tabulation of poker machine gambling category (poker machine gamblers and non-poker machine gamblers) by marital status, dependent children and housing status.

Table 3
Family and Housing Characteristics of Poker Machine and Non-Poker Machine Gamblers

Characteristic	Poker Machine Players N=1879 %	Non-Poker Machine Players N=1121 %	Total Club Members N=3000 %
Marital Status:*			
Never married	19.5	13.2	17.1
Married	62.4	68.5	64.7
De Facto	3.7	2.3	3.2
Widowed	5.9	7.1	6.4
Divorced	5.6	5.8	5.7
Separated	2.7	2.7	2.7
Refused	0.3	-	0.3
Dependent Children:			
Yes	32.9	34.9	33.6
No	67.1	64.9	66.2
Refused	-	0.3	-
Dependent children 0-6 years:			
0	88.7	89.3	88.9
1	7.0	6.0	6.6
2	3.5	3.9	3.7
3 or more	0.8	0.8	0.7
Dependent children 6-13 years:*			
0	84.4	80.0	82.7
1	8.9	10.6	9.6
2	5.3	7.0	5.9
3 or more	1.4	2.4	1.8
Dependent children >13 years:			
0	83.2	81.6	82.6
1	9.5	8.7	9.2
2	5.2	7.8	6.2
3 or more	2.1	2.0	2.0
Housing Status:*			
Fully own home	45.4	55.7	49.3
Purchasing own home	27.0	24.8	26.2
Rent from private landlord	10.4	6.3	8.9
Rent from Housing Commission	3.0	1.6	2.5
Rent from other govt agency	0.3	-	0.3
Live with parents	11.4	7.9	10.1
Live rent free	1.0	1.5	1.2
Other	0.6	-	0.4
Refused	0.9	1.9	1.2

*** significant at p ≤ .001   ** significant at p≤ .01   * significant at p ≤.05

Marital Status by Poker Machine Gambling Category

The results of the chi-square test show that there is a significant association between marital status and poker machine gambling category ($X^2 = 26.0$; df = 6; p ≤ .001), as shown in Table 3. Higher proportions of poker machine gamblers than non-poker machine gamblers are never married or in de facto relationships, while lower proportions of poker machine gamblers are married, widowed or divorced. Equal proportions of poker machine and non-poker machine gamblers are separated but not divorced. About one-fifth (19.5%) of poker machine players are never married compared to 13.2% of non-poker machine players, while 3.7% of poker machine players are in de facto relationships compared to 2.3% of non-players.

Dependent Children by Poker Machine Gambling Category

The chi-square test demonstrates that there is no significant association between having dependent children and poker machine gambling category, nor between having dependent children aged 0 to 6 years and gambling category. However, there is a significant association between having dependent children aged 6-13 years and poker machine gambling category (X^2 = 14.27; df = 5; p ≤ .014), as shown in Table 3. A lesser percentage of poker machine gamblers (84.4%) than non-poker machine gamblers (80%) have dependent children aged 0-6 years.

Housing Status by Poker Machine Gambling Category

Results of the chi-square test indicate that housing status and poker machine gambling category are significantly related (X^2 = 56.1; df = 8; p ≤ .001), as shown in Table 3. Higher proportions of poker machine gamblers than non-poker machine gamblers are purchasing their own home, or living with parents, or renting it from private landlords or the Housing Commission. Conversely, lower proportions of poker machine gamblers fully own their own home. About one-quarter (27%) of poker machine players are purchasing their own home, compared to 24.8% of non-players, while 11.4% of poker machine players live with parents compared to 7.9% of non-players. 13.7% of poker machine players rent their premises, compared to 8.1% of non-players.

Table 4 presents a cross-tabulation of poker machine gambling category (poker machine gamblers and non-poker machine gamblers) by work status and occupation.

Table 4
Employment Characteristics of Poker Machine and Non-Poker Machine Gamblers

Characteristic	Poker Machine Players N=1879	Non-Poker Machine Players N=1121	Total Club Members N=3000
	%	%	%
Work Status:*			
Work full-time	55.7	53.6	54.9
Work part-time	11.5	11.7	11.6
Home duties	8.8	7.3	8.2
Student	1.5	1.4	1.5
Pensioner	9.9	11.1	10.3
Self-supporting retiree	10.1	12.5	11.0
Unemployed	2.2	1.3	1.9
Refused/Don't know	0.3	0.9	0.5
Occupation:*			
Not working	32.8	34.7	33.5
Manager/administrator	15.3	16.1	15.6
Professional	10.1	11.5	10.6
Para-professional	4.5	5.2	4.8
Tradesperson	10.3	9.7	10.1
Clerk	11.1	8.6	10.1
Salesperson/personal service	7.7	7.0	7.5
Plant & machinery operator/driver	4.3	4.5	4.4
Labourer or similar	3.0	1.6	2.5
Student	0.4	-	0.3
No usual occupation	0.4	-	0.3
Refused/Don't know	-	0.4	0.4

*** significant at p ≤ .001   ****** significant at p≤ .01   ***** significant at p ≤.05

Work Status by Poker Machine Gambling Category

Results of the chi-square test indicate that there is a significant association between work status and poker machine gambling category ($X^2 = 18.8$; df = 8; $p \leq .016$), as shown in Table 4. Higher proportions of poker machine gamblers than non-poker machine gamblers work full-time, are engaged in home duties, are students or are unemployed. Conversely, lower proportions of poker machine gamblers work part-time or are pensioners or self-supporting retirees. 55.7% of the players work full-time compared to 53.6% of non-players, while 8.8% of poker machine players are engaged in home duties compared to 7.3% of non-players. 2.2% of poker machine players are unemployed compared to 1.3% of non-players.

Occupation by Poker Machine Gambling Category

The chi-square test indicates that main occupation and poker machine gambling category are significantly related ($X^2 = 22.2$; df = 12; $p \leq .035$). Table 4 shows that higher proportions of poker machine gamblers than non-poker machine gamblers are tradespersons, clerks, salespersons/personal service workers, or labourers or similar. Alternatively, lower proportions of poker machine gamblers are managers/administrators, professional, para-professionals or plant and machinery operators/drivers. 10.3% of poker machine players are tradespersons, 11.1% are clerks, 7.7% are salespersons/personal service workers and 3% are labourers. This compares to 9.7% of non-poker machine players who are tradespersons, 8.6% who are clerks, 7% who are salespersons/personal service workers and 1.6% who are labourers.

Table 5 presents a cross-tabulation of poker machine gambling category (poker machine gamblers and non-poker machine gamblers) by personal and household annual income, and main source of household income.

Table 5
Income Characteristics of Poker Machine and Non-Poker Machine Gamblers

Characteristic	Poker Machine Players N=1879	Non-Poker Machine Players N=1121	Total Club Members N=3000
	%	%	%
Personal Annual Income:*			
Less than $8,000	13.8	12.3	13.3
$8.001 - $12,000	8.2	8.7	8.4
$12,001 - $16,000	5.7	4.9	5.4
$16,001 - $20,000	4.9	4.8	4.9
$20,001 - $25,000	8.5	8.1	8.3
$25,001 - $30,000	9.1	6.5	8.1
$30,001 - $35,000	9.8	6.7	8.6
$35,001 - $40,000	7.7	7.2	7.5
$40,001 - $50,000	10.4	10.7	10.5
$50,001 - $60,000	5.6	5.6	5.6
$60,001 - $70,000	2.4	2.3	2.4
$70,001 - $80,000	1.2	2.1	1.5
$80,001 - $100,000	1.1	1.2	1.2
$100,001 - $120,000	0.3	0.8	0.5
$120,001 and over	0.4	0.8	0.6
Don't know	3.8	4.8	4.2
Refused	7.0	12.4	9.0
Household Annual Income:*			
Less than $8,000	2.9	3.1	3.0
$8.001 - $12,000	5.4	4.6	5.1
$12,001 - $16,000	3.4	3.9	3.6
$16,001 - $20,000	3.1	3.3	3.2
$20,001 - $25,000	4.5	4.3	4.4
$25,001 - $30,000	5.2	4.0	4.8
$30,001 - $35,000	6.0	4.9	5.6
$35,001 - $40,000	6.3	4.9	5.8
$40,001 - $50,000	10.1	8.5	9.5
$50,001 - $60,000	7.5	8.2	7.7
$60,001 - $70,000	7.5	5.6	6.8
$70,001 - $80,000	5.3	5.2	5.3
$80,001 - $100,000	6.6	6.9	6.7
$100,001 - $120,000	3.8	3.2	3.6
$120,001 - $150,000	1.3	1.2	1.3
Over $150,000	1.5	1.6	1.5
Don't know	11.9	12.8	12.2
Refused	7.8	13.7	10.0
Main Source of Income:*			
Wages/salary	66.4	59.5	63.8
Own business	8.7	12.7	10.2
Other private income	3.7	3.7	3.7
Unemployment benefit	1.0	1.0	1.0
Retirement benefit	11.8	13.8	12.5
Other govt benefit	6.1	5.6	5.9
Other	1.0	-	0.8
Don't know	0.3	0.6	0.4
Refused	1.1	2.8	1.7

*** significant at $p \leq .001$ ** significant at $p \leq .01$ * significant at $p \leq .05$

Personal Annual Income by Poker Machine Gambling Category

Results of the chi-square test indicate that there is a significant association between personal annual income and poker machine gambling category ($X^2 = 49.7$; df = 17; p ≤ .001). Table 5 shows that higher proportions of poker machine gamblers than non-poker machine gamblers earn a gross personal annual income of less than $8,001 or between $12,001 and $40,000, while lower proportions of poker machine gamblers earn between $8,001 and $12,000 or more than $70,000. 13.8% of poker machine players earn less than $8,001 compared to 12.3% of non-players, while nearly half (45.7%) of poker machine players earn between $12,001 and $40,000 compared to 38.2% of non-poker machine players.

Household Annual Income by Poker Machine Gambling Category

Results of the chi-square test indicate that there is no significant association between personal annual income and poker machine gambling category ($X^2 = 39.5$; df = 17; p ≤ .002), as shown in Table 5. Higher proportions of poker machine gamblers than non-poker machine gamblers earn a gross household annual income of between $8,001 and $12,000, between $20,001 and $50,000, between $60,001 and $80,000 or between $100,001 and $150,000. The relationship between poker machine gambling category and annual household income does not appear as clear-cut as with personal annual income.

Main Source of Household Income by Poker Machine Gambling Category

Results of the chi-square test indicate that there is a significant association between the main source of household income and poker machine gambling category ($X^2 = 37.1$; df = 8; p ≤ .001), as shown in Table 5. Higher proportions of poker machine gamblers than non-poker machine gamblers have wages/salary or other government benefit as their main source of household income. In contrast, lower proportions of poker machine players source their main household income from their own business or retirement benefits. Equal proportions of poker machine players and non-players source their income from other private income and unemployment benefits. About two-thirds (66.4%) of poker machine players source their main household income from wages/salary, compared to 59.5% of non-players, while 6.1% of poker machine players source this from other government benefits, compared to 5.6% of non-players.

Table 6 presents a cross-tabulation of poker machine gambling category (poker machine gamblers and non-poker machine gamblers) by country of birth, father's and mother's country of birth, main language other than English spoken at home, and Aboriginal or Torres Strait Islander descent.

Table 6
Ethnic Characteristics of Poker Machine and Non-Poker Machine Gamblers

Characteristic	Poker Machine Players N=1879	Non-Poker Machine Players N=1121	Total Club Members N=3000
	%	%	%
Country of Birth:**			
Australia	76.7	77.3	76.9
United Kingdom	10.9	10.6	10.8
NZ & Pacific Islands	1.4	1.0	1.3
SE Asia	1.4	1.1	1.3
Other Asia	1.1	2.0	1.4
Eastern Europe	1.3	0.7	1.4
Western Europe	4.8	3.7	4.4
North America	-	0.7	0.4
South America	0.4	-	0.4
Middle East	0.9	1.8	1.2
Africa	0.8	-	0.6
Country of Father's Birth:**			
Australia	61.0	63.4	61.9
United Kingdom	17.9	16.8	17.5
NZ & Pacific Islands	1.4	1.3	1.4
SE Asia	1.3	0.7	1.1
Other Asia	1.6	2.4	1.9
Eastern Europe	3.1	1.8	2.6
Western Europe	10.2	8.6	9.6
North America	0.3	0.7	0.4
South America	0.4	0.5	0.5
Middle East	1.6	2.2	1.9
Africa	0.7	-	0.5
Mother's Country of Birth:**			
Australia	64.2	67.4	65.4
United Kingdom	16.5	13.9	15.5
NZ & Pacific Islands	1.3	1.2	1.3
SE Asia	1.3	1.0	1.2
Other Asia	1.5	2.4	1.8
Eastern Europe	2.4	1.7	2.2
Western Europe	9.3	7.3	8.5
North America	-	0.8	0.4
South America	0.4	0.4	0.4
Middle East	1.6	2.3	1.9
Africa	0.7	-	0.5
Main Language Except English:			
English only	89.7	91.8	90.5
SE Asian	0.7	0.6	0.7
Other Asian	1.2	1.2	1.2
East European	1.1	0.6	0.9
West European	5.4	3.9	4.8
Middle Eastern	1.4	1.4	1.4
Aboriginal/TSI Descent			
Yes	1.7	0.9	1.4
No	98.1	99.0	98.4

*** significant at $p \leq .001$ ** significant at $p \leq .01$ * significant at $p \leq .05$