

**"Socio-Demographic Characteristics  
of Resident Populations supporting  
Poker Machine Playing in Sydney  
Registered Clubs"**

**September 1996**

Any opinions expressed in this document are the responsibility of the authors and do not necessarily reflect the views of the Minister or the NSW Dept. of Gaming & Racing, nor the Casino Community Benefit Fund.

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## Executive Summary

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

The objective of this first stage was to provide an appropriate background to the survey and interview work planned for the second and third stages of the project. It aimed to identify, from secondary research, the socio-demographic characteristics which tend to support registered clubs and their poker machine gaming activities in the Sydney Statistical Division. More specifically, this study analysed data from the Australian Bureau of Statistics and the NSW Department of Gaming and Racing and identified distinctive socio-demographic features of adult resident populations in Sydney statistical local areas which are associated with high concentrations of registered clubs and high levels of poker machine expenditure per head of population.

A four-stage analytical design was employed, consisting of Pearson's Product Moment correlation between the dependent and independent variables, Principle Components Factor analysis (varimax rotation) of related sets of the independent variables, Principle Components Factor analysis (varimax rotation) of variables derived from the first factor analysis, and stepwise regression analysis of the dependent and the final derived independent variables.

The study found that Sydney areas with the highest concentrations of registered clubs per population are Manly (3.9 clubs per 10,000 residents), Botany (2.9 clubs per 10,000 residents), Mosman (2.7 clubs per 10,000 residents) and Hurstville (2.6 clubs per 10,000 residents). Areas with the lowest club concentration are Blacktown (0.6 clubs per 10,000 residents), Lane Cove (0.7 clubs per 10,000 residents) and the Blue Mountains (0.7 clubs per 10,000 residents). The best socio-demographic predictors of Sydney statistical local areas which support high concentrations of registered clubs were found to be relatively large proportions of adult residents who:

- are aged 60 years and over;
- own their own home;
- are widowed.

However, while the above factors tend to support high concentrations of registered clubs per head of population in Sydney, the characteristics of statistical local areas which influence the level of poker machine expenditure were very different. The Sydney areas with the highest poker machine expenditure per head of population were identified as Canterbury (\$712.34); Bankstown (\$584.05); Rockdale and Botany (\$568.02); and Fairfield (\$566.32). Those groups with the lowest poker machine expenditure per head of population were found to be Kur-ing-gai and Willoughby (\$65.39); Hornsby and Baulkham Hills (\$181.46); and Mosman and Manly (\$190.04). Results indicate that the best socio-demographic predictors of Sydney statistical local areas where per capita poker machine expenditure is high are large proportions of the adult resident population who:

- were born in Malta, Greece, Lebanon, China, Italy, Vietnam, Yugoslavia, India or the Philippines;
- have no vocational or tertiary qualifications;
- are unemployed.

The profile of Sydney populations which spend highly on poker machines broadly supports the lower socio-economic profile associated with poker machine players identified in previous Australian studies.

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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 eleven 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, two representatives from the ethnic community, 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 first 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 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 utilises 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 second stage consists 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.
- The third stage involves personal interviews with representatives from providers of support services for problem gamblers in Sydney to determine how they raise awareness of their services among 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 volume reports only on the first stage of the project which addresses the first of the project objectives. Subsequent reports address the second and third stages of the study.



## **Section Three**

# **Poker Machine Gaming in New South Wales**

In order to set the study into perspective, this section outlines a brief history of the NSW registered clubs industry and the growth of poker machine gaming in NSW.

### **3.1 Brief History of the New South Wales Club Industry**

The Registered Clubs Association of NSW (RCA) defines clubs as "*groups of people sharing a common interest who have bonded together to pursue or promote that interest*" (1994:3). The majority of NSW clubs are founded on members' sporting interests or returned service affiliation, although ethnic, religious, workers, social and community clubs are also common. For registration, the main requirements under the Corporations Law (Cth) and the Registered Clubs Act (NSW) are that a club must be incorporated, be conducted in good faith and occupy bona fide premises for the purposes of the club which are financed by club funds.

Although the NSW Liquor Act first licensed 85 clubs for trading in 1905, many of these clubs had existed in NSW since the late 1800s, with the first club, the Australian Club, founded in Sydney in 1838 (Tildesley, 1970:v). These early NSW clubs were modelled on the British gentlemen's clubs, catering exclusively for the elite. It was not until the end of W.W.II and the return of ex-service personnel that clubs began to gain a wider acceptance in the community. Indeed, in only the last fifty years, the number of NSW registered clubs has grown from 85 to over 1,500 (RCA, 1994:3-5).

During the first half of this century, pubs were virtually the sole public establishments catering for the social consumption of alcohol. However, by the end of W.W.II, the lack of service and the '6 o'clock swill' in NSW pubs, combined with the shortage of beer and a resulting black market, had tried the patience of ordinary social drinkers and increased demand for better leisure establishments (Caldwell, 1972:69). Amendments to the NSW Liquor Act in 1946 allowed the authorisation of another 265 clubs. No longer were clubs privileged domains for 'gentlemen', but returned soldiers, sporting and other groups founded and patronised clubs.

By 1958, with further amendments to the NSW Liquor Act, the number of NSW registered clubs had grown to 1,050. Clubs were now recognised as the focal point for a variety of entertainment, sporting and social activities. Furthermore, because clubs were considered private, rather than public, organisations, they retained the important privilege of being able to serve liquor outside hotel trading hours, that is, after 6 pm and on Sundays. It is not surprising then, that many NSW residents became members and supporters of registered clubs.

While the clubs gained important advantages over hotels in the service of alcohol, it was their exclusive right to operate poker machines which has proved the 'lifeblood' of the industry. While poker machines were not legalised in clubs until 1956, various types of machine had been used in clubs, probably since about the 1900s (Caldwell, 1972:95). In the first half of this century, the government's attitude to poker machines was one of ambivalence, with intermittent steps taken to eliminate them. However, in the early 1950s, the clubs themselves lobbied for the legalisation of poker machines, offering an annual tax on each machine and arguing financial hardship and loss of jobs if they were to be removed. Despite continued objection by church groups and the hotel industry, the State Government legalised poker machines in NSW clubs in August 1956, with the Premier noting that to prohibit poker machines would jeopardise the existence of many clubs and the employment they provided

(cited in Caldwell, 1972:100). Once poker machines were legalised in 1956, and with amendments to government legislation in the following three years, 700 additional clubs were registered in NSW between 1955 and 1958, bringing the total to 1,050 (RCA, 1994:3).

According to the most recent industry statistics, there are currently over 1,500 registered clubs in NSW, generating an annual turnover of over \$20 billion, with a collective membership of around 2.5 million people. Furthermore, NSW clubs contribute over \$400 million in state taxes, most of which comes from the revenue raised by more than 62,000 poker machines. In addition to taxation revenue, around 50% of NSW poker machine revenue provides community support for charities, sport, the aged and handicapped and club projects for its members (RCA, 1994:5; NSW Department of Gaming and Racing, 1996). Additional revenue accrues from food, beverage, entertainment and other types of club gaming, such as keno, TAB, bingo and raffles, but is a small fraction of that raised by poker machines which account for some 70% of revenue generated within NSW registered clubs (NSW Department of Gaming and Racing, 1995:4).

### **3.2 Poker Machine Gaming in New South Wales Clubs**

To illustrate the growth of poker machine gaming in NSW, the number of clubs licensed to have poker machines, the number of licensed machines, annual club profits and government revenue from poker machines are shown in Table 1.

The legalisation of poker machines in 1956 gave NSW registered clubs a monopoly on gaming machines in Australia for 20 years, with on-course bookmakers and state-run lotteries the only other forms of legal gambling available. However, during the last twenty years numerous other types of legalised gambling have been introduced both in NSW and interstate. Table 2 shows some important milestones in the Australian gaming industry.

However, despite this proliferation of new gambling options, club poker machines have retained the major market share of all NSW forms of gaming. As shown in Figure 1, expenditure on NSW poker machines has fluctuated from around 90% of the NSW gaming market during the 1970s, to a low of 79% in the 1980s, to around 84% in the 1990s (Tasmanian Gaming Commission, 1996:142). In fact, the Department of Gaming and Racing estimates that between 20% to 25% of club patrons regularly play poker machines (1995:4).

In Sydney, 602 registered clubs with 30,069 poker machines generate \$253 million in taxes and \$1,175 million in club profits. This represents about 41% of all NSW clubs, 48% of NSW poker machines, 62% of NSW club poker machine taxes and 61% of NSW club poker machine profits. Furthermore, the average profit per poker machine in Sydney for the 1994-95 financial year was \$39,063, about 68% higher than the average profit per machine in NSW country areas of \$23,308 (NSW Department of Gaming and Racing, 1996:14).

**Table 1**  
**Registered Clubs, Poker Machine Numbers, Club Net Profits and Government Revenue**  
**from Club Poker Machines for the Year Ended 30 June 1996**

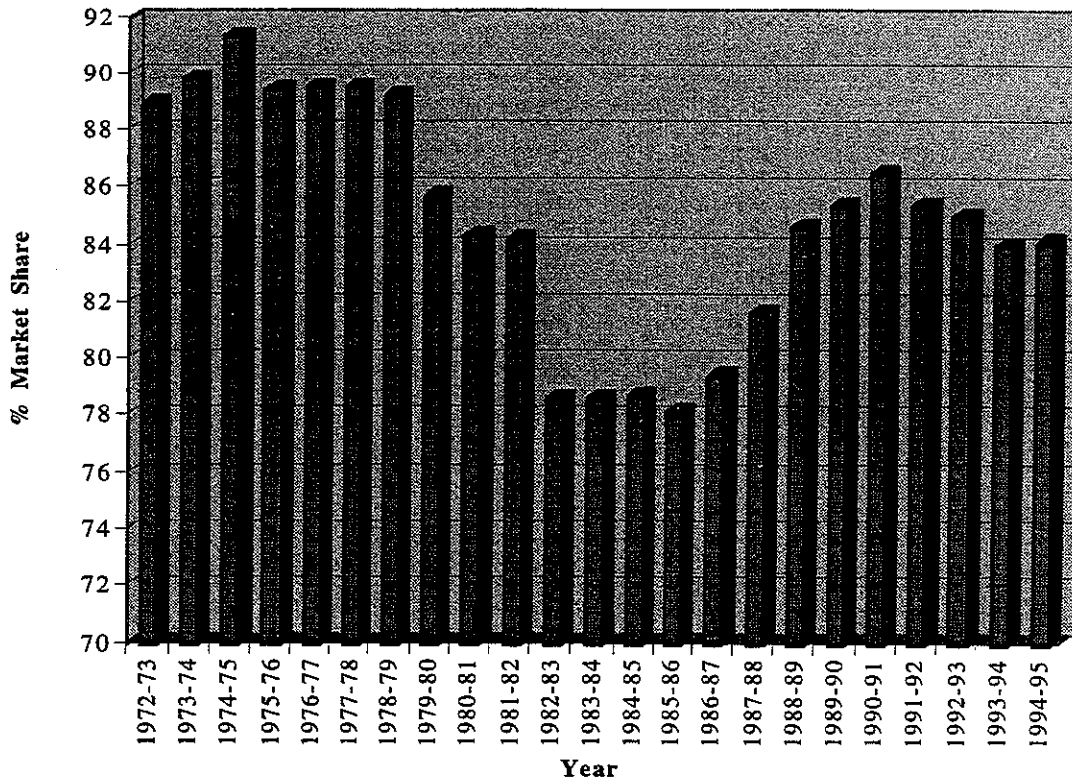
Year	No. of Clubs	No. of Poker Machines	Net Profit \$ million	Govt Revenue \$ million
1957	952	5,596	n.a	1.5
1958	1,073	6,561	n.a	1.7
1959	1,135	7,289	n.a	1.8
1960	1,189	8,299	n.a	2.6
1961	1,228	9,614	n.a	3.4
1962	1,264	10,814	n.a	3.5
1963	1,274	12,299	n.a	6.6
1964	1,306	14,107	59.8	11.4
1965	1,335	16,273	74.0	13.7
1966	1,365	18,326	83.2	15.8
1967	1,394	19,617	94.1	19.7
1968	1,420	21,873	106.1	23.1
1969	1,438	24,004	122.1	26.3
1970	1,442	26,636	142.1	30.4
1971	1,453	29,887	162.7	34.8
1972	1,467	32,411	184.8	38.3
1973	1,475	34,709	205.8	42.6
1974	n.a.	n.a.	253.0	n.a
1975	1,494	40,264	314.7	71.9
1976	1,507	43,126	359.1	83.4
1977	1,506	44,400	387.6	92.0
1978	1,525	45,519	425.2	98.2
1979	1,534	47,182	482.4	107.9
1980	1,532	48,439	540.5	120.7
1981	1,539	49,208	607.9	139.0
1982	1,543	49,369	666.9	153.1
1983	1,547	48,285	665.3	152.7
1984	1,553	47,434	697.3	158.0
1985	1,544	47,314	704.4	167.5
1986	1,541	46,689	781.9	179.5
1987	1,530	47,963	n.a	191.8
1988	1,535	48,782	n.a	212.2
1989	1,521	50,705	n.a	239.4
1990	1,501	52,353	n.a	269.9
1991	1,499	54,992	n.a	284.4
1992	1,487	57,197	1,421.7	293.2
1993	1,468	58,534	1,472.0	306.1
1994	1,453	59,650	1,662.4	347.7
1995	1,439	62,219	1,926.6	407.5
1996	1,441	64,157	2,121.6	448.9

Source: NSW Department of Gaming and Racing (1997:31).

**Table 2**  
***Milestones in the Development of the Australian Gaming Industry***

<b>Year</b>	<b>Introduction of ...</b>
1897	Tattersall's Lottery in TAS
1920	QLD State Lottery (Golden Casket)
1931	NSW State Lottery
1933	W.A. State Lottery
1954	Tattersall's Lottery in VIC
1956	Poker machines in NSW clubs
1966	S.A. State Lottery
1972	Lotto in VIC
1973	Lotto in S.A., Wrest Point Casino in TAS
1974	Soccer Pools in Victoria
1975	Soccer Pools in NSW, QLD & TAS
1976	Poker Machines in ACT clubs, Lotto in ACT
1978	Lotto in W.A & N.T., Instant Lottery in S.A., Soccer Pools in N.T.
1979	Lotto in NSW, Instant Lottery in N.T, Soccer Pools in ACT, Diamond Beach Casino in N.T.
1980	Soccer Pools in S.A.
1981	Lotto in QLD, Instant Lottery in VIC, TAS, ACT
1982	Instant Lottery in NSW & W.A., Lasseters Casino in N.T., Launceston Country Club Casino in TAS
1984	Gaming machines in NSW hotels, Instant Lottery in QLD, Soccer Pools in W.A.
1985	Jupiters Casino in QLD, Burswood Casino in W.A.
1986	Video gaming machines in TAS casinos, Adelaide Casino in S.A., Breakwater Casino in QLD
1987	Gaming machines in ACT hotels
1990	Gaming machines in N.T.
1991	Gaming machines in QLD, Keno in NSW
1992	Gaming machines in VIC, Casino Canberra in ACT, Keno in S.A.
1993	Keno in VIC
1994	Gaming machines in S.A., Melbourne's Crown Casino
1995	Brisbane's Treasury Casino, Sydney Harbour Casino
1996	Cairn's Reef Casino, Keno introduced in QLD
1997	Gaming machines in TAS, poker machines in NSW hotels

**Figure 1**  
**NSW Poker Machine Market Share of Total NSW Gaming Expenditure 1972-73 to 1994-95**



### 3.3 Other Poker Machine Gaming Venues in NSW

At the time of the study, Sydney Harbour Casino was the only other venue legally allowed to have poker machines in NSW, apart from the registered clubs. The temporary casino opened in September 1995, with 500 poker machines and 150 gaming tables. Its permanent site, due to open in late 1997 will have 1,500 poker machines and 200 gaming tables. For the 1995-96 fiscal year, Sydney Harbour Casino had total gross revenues of \$236.4 million and a total net income of \$177.6 million. About 3.5 million people visited the casino (Kelly, 1997).

Since this study was conducted, new legislation has authorised the operation of up to fifteen club-type poker machines, as well as up to fifteen approved amusement devices by NSW hotels. However, it should be noted that the data presented in later sections of this report pertain only to poker machine gaming in NSW registered clubs

## **Section Four**

### **Distribution and Concentration of Registered Clubs in Sydney**

As preliminary information, this section examines the distribution and concentration of registered clubs in Statistical Local Areas (SLAs) in Sydney. A list of all registered clubs in Sydney was accessed from the Registered Clubs Association of NSW and their postcodes were used to locate them in the various Sydney SLAs.

#### **4.1 Distribution of Registered Clubs in Sydney**

Figure 2 shows the distribution of Sydney registered clubs by SLA. The SLAs in Sydney with the highest numbers of registered clubs are Warringah (32 clubs), Sutherland (30 clubs) and Randwick (28 clubs), while those with the lowest numbers of registered clubs are Lane Cove (2 clubs) and Hunters Hill (1 club).

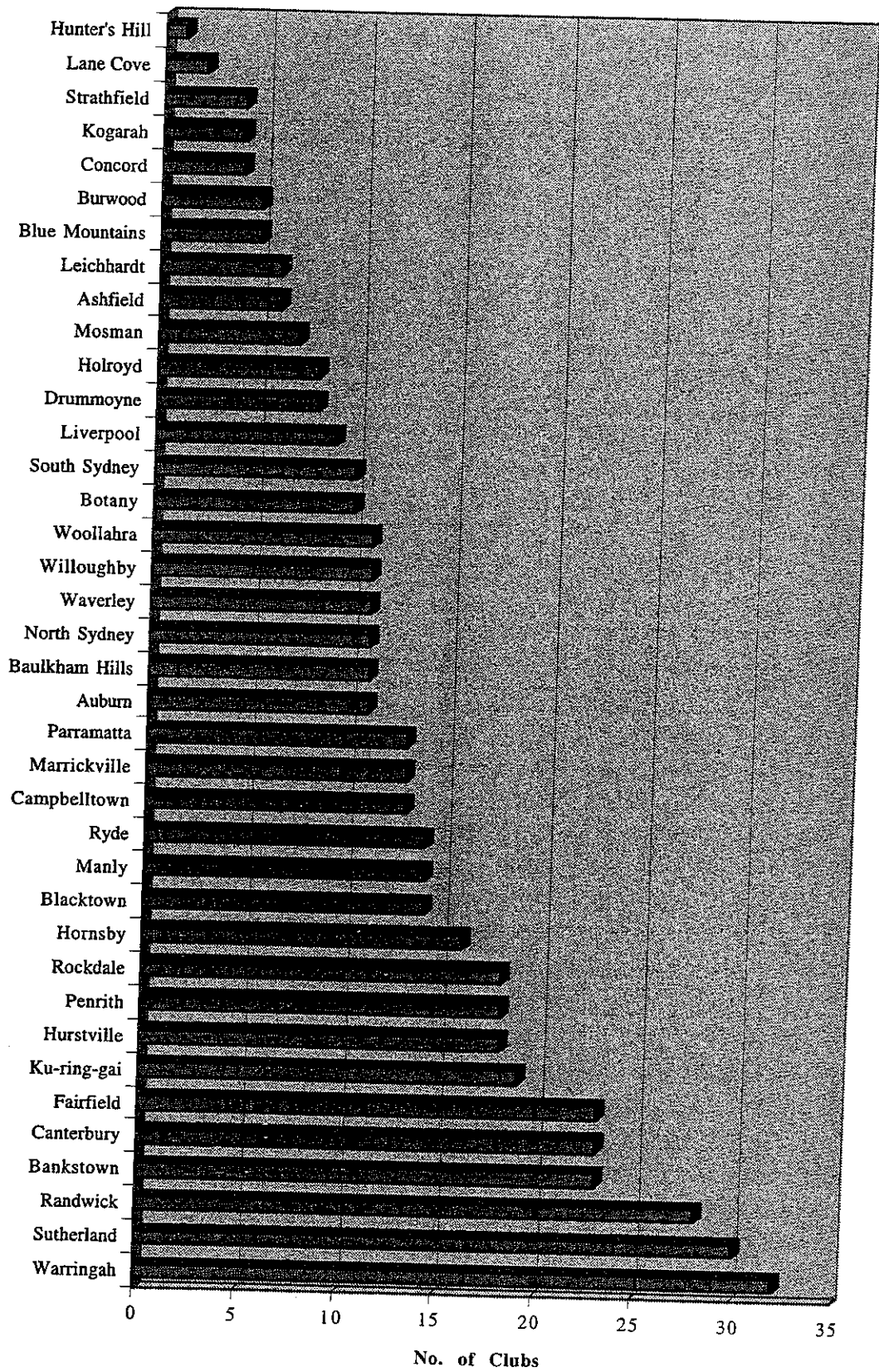
#### **4.2 Concentration of Registered Clubs in Sydney**

A more accurate picture of how clubs are distributed throughout the Sydney region is given by examining the concentration of clubs per head of population. To calculate the number of clubs per head of population, only the population aged 15 years and over was used, referred to hereafter as the adult population. While the legal age for entry into premises licensed for poker machine gaming and liquor is 18 years, the ABS includes these people in the 15 to 19 year old age group.

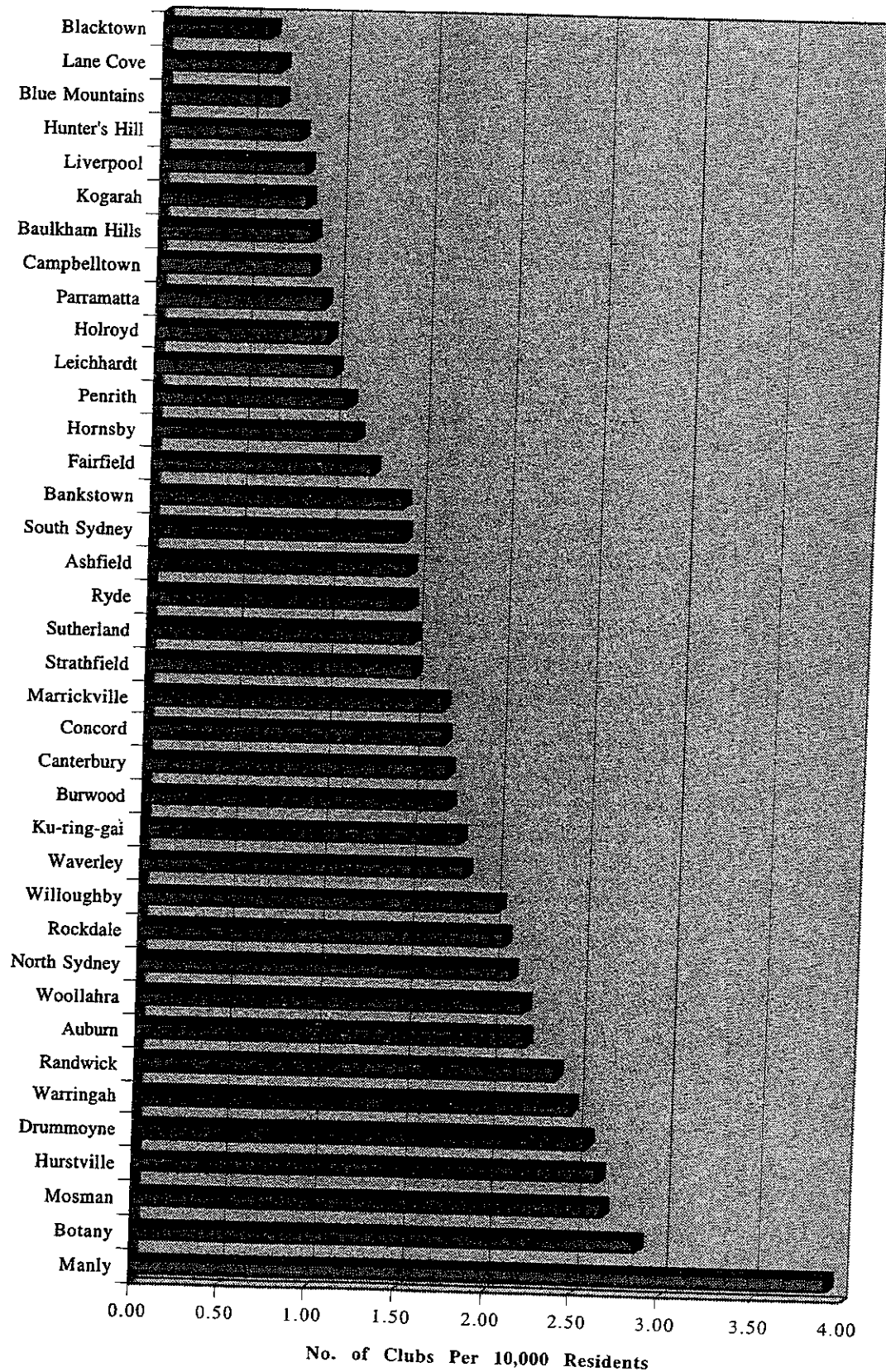
Figure 3 indicates the number of clubs per 10,000 residents for each of the Sydney SLAs. The areas with the highest concentrations of registered clubs per population are Manly (3.9 clubs per 10,000 residents), Botany (2.9 clubs per 10,000 residents), Mosman (2.7 clubs per 10,000 residents) and Hurstville (2.6 clubs per 10,000 residents), while those with the lowest concentration are Blacktown (0.6 clubs per 10,000 residents), Lane Cove (0.7 clubs per 10,000 residents) and the Blue Mountains (0.7 clubs per 10,000 residents).

It should be noted that the Inner Sydney SLA was removed from the analysis as it was considered an outlier due to its extremely high concentration of clubs per 10,000 residents (41.9 clubs). Inner Sydney has a large number of clubs but a small resident population. Many of the clubs in this area have a far wider trading area than other metropolitan clubs, enjoying substantial patronage from non-residents of Inner Sydney including city workers, shoppers, tourists and other visitors to the area. Given the potential distortion of the research results, Inner Sydney was excluded from all analysis of the socio-demographic characteristics which support registered clubs.

Figure 2  
Distribution of Sydney Registered Clubs



*Figure 3*  
*Number of Clubs Per 10,000 Residents in Sydney*  
*Statistical Local Areas*





## Section Five

### Socio-Demographic Characteristics that Support Sydney Registered Clubs

This section of the report explores the socio-demographic characteristics of populations which tend to support registered clubs in Sydney. It will explain the sources of data, measures used, statistical procedures and results.

#### 5.1 Sources of Data

Two sets of data were needed to explore the socio-demographic characteristics which support registered clubs in Sydney. The first set consisted of the concentration of Sydney registered clubs per SLA, sourced from the Registered Clubs Association of NSW as previously explained. The second data set consisted of selected socio-demographic characteristics for each Sydney SLA which was sourced from Census data from the Australian Bureau of Statistics (ABS).

#### 5.2 Measures

The dependent variable for this analysis was the concentration of Sydney registered clubs per SLA. The independent variables for this analysis were the selected socio-demographic characteristics and their associated ABS categories as listed in Table 3.

*Table 3*  
*Independent Variables in the Study*

Independent Variables	Categories Used
Age	in 5 year increments
Sex	male, female
Marital status	never married, married, separated, divorced, widowed
Housing status	owned, purchasing, Department of Housing rent, other government rent, private rental
Highest educational qualification	higher degree, postgraduate diploma, bachelor degree, undergraduate diploma, associate diploma, skilled vocational, basic vocational, not qualified
Employment status	employed, unemployed
Occupation	manager, professional, para-professional, tradesperson, clerk, sales & personal service worker, plant & machinery operator/driver, labourer & related worker
Household income	\$0-8K, \$8-12K, \$12-16K, \$16-20K, \$20-25K, \$25-30K, \$30-35K, \$35-40K, \$40-50K, \$50-60K, \$60-70K, \$70-80K, \$80-100K, \$100-120K, \$120-150K, \$150K+
Country of birth	Australia, Canada, Ireland, New Zealand, South Africa, United Kingdom, United States, China, Germany, Greece, Hong Kong, India, Italy, Lebanon, Malaysia, Malta, Netherlands, Philippines, Poland, USSR, Vietnam, Yugoslavia. (note: only the 22 most numerous countries of birth were used, with the remaining categorised as "other")

For each Sydney SLA, the numbers of residents in each category of the selected socio-demographic characteristics were converted to a percentage of the total adult population (those aged 15 years and over). This was necessary for comparative purposes as Sydney SLAs do not have equal populations.

### 5.3 Overview of Statistical Procedures Used

Data analysis, to be described in more detail in the following sections, proceeded through these steps.

- Pearson's Product Moment correlation was used to explore any associations between the dependent variable and each of the independent variables, unadjusted for partial correlations. This method determines the extent to which values of the dependent variable and each of the independent variables are proportional to each other. The value of the correlation coefficient ( $r$ ) can be from  $-1.0$  to  $+1.0$ , representing perfect negative correlation to perfect positive correlation respectively. The value  $0$  represents total lack of correlation (Statsoft, 1991). That is, variables are positively correlated if cases with low values for one variable also tend to have low values for the other, and cases with high values on one variable also tend to be high on the other. Negatively correlated variables show the opposite relationship; the higher the first variable, the lower the second tends to be (Norusis, 1994). The significance level for this procedure was set at  $p \leq 0.01$ .
- Principle Components Factor analysis (varimax rotation) of related sets of the independent variables was then used to reduce the incidence of partial correlation between these variables. Principle Components Factor analysis is a statistical technique applied to a single set of variables to discover which variables in the set form coherent subsets that are relatively independent of each other. Variables that are correlated with one another, but largely independent of other subsets of variables, are combined into factors. Factors reflect underlying processes that have created the correlations among variables (Tabachnick and Fidell, 1989). Based on this factor analysis, 34 new variables were deduced which each represent a set of independent variables which are highly intercorrelated.
- Pearson's Product Moment correlation was used again to determine whether any partial correlations existed between the 34 derived sets of variables. The significance level for this procedure was set at  $p \leq 0.01$ .
- Given that some of the 34 derived sets of variables were intercorrelated, a second Principle Components Factor analysis was conducted to derive 13 variables which each represent a set of independent variables which are highly intercorrelated.
- These 13 variables were then used as possible predictor variables in a stepwise regression analysis with the dependent variable. Statistical regression is typically used to develop a subset of independent variables useful in predicting the dependent variable and to eliminate those independent variables that do not provide additional prediction to the independent variables already in the equation. Stepwise regression is considered the surest path to the best prediction equation (Tabachnick and Fidell, 1989). The significance level for this procedure was set at  $p \leq 0.01$ .

The rest of this section describes the results of each of the above steps.

## 5.4 Correlation Analysis

The results of the Pearson's Product Moment correlation between the concentration of registered clubs in Sydney and the selected socio-demographic characteristics are shown in Table 4.

**Table 4**  
**Correlation Coefficients Between Club Concentration in Sydney SLAs and Selected Socio-Demographic Characteristics**

Socio-Demographic Characteristics	r value	p value ≤
<b>Age:</b>		
0-14 years	-.4706	.003*
15-19 years	-.5416	.000**
20-24 years	-.0019	.991
25-29 years	.2381	.150
30-34 years	.1978	.234
35-39 years	.0884	.598
40-44 years	-.2265	.171
45-49 years	-.0578	.730
50-54 years	.1944	.242
55-59 years	.2682	.103
60-64 years	.3511	.031
65-69 years	.4193	.009*
70-74 years	.4707	.003*
75-79 years	.5260	.001**
80-84 years	.5157	.001**
85 years & over	.3421	.036
<b>Sex:</b>		
males	-.2925	.075
females	.3080	.060
<b>Marital Status:</b>		
never married	.2861	.082
married	.2067	.213
separated	.1646	.323
divorced	.3674	.023
widowed	.4954	.002*
<b>Housing Status:</b>		
own	.5028	.001**
purchasing	-.3260	.046
Department of Housing rental	-.2095	.207
other government rental	-.0210	.901
private rental	.4358	.006*
<b>Highest Educational Qualification:</b>		
higher degree	.2022	.223
postgraduate diploma	.1514	.364
bachelor degree	.2776	.092
undergraduate diploma	.2481	.133
associate diploma	.0782	.641
skilled vocational	-.0320	.849
basic vocational	.2629	.111
not qualified	.2146	.196
<b>Employment:</b>		
employed	.4036	.012*
unemployed	-.0513	.760
<b>Occupation:</b>		
managers	.2729	.097
professionals	.2092	.207

para-professionals	.0443	.792
tradespersons	-.0676	.687
clerks	.3457	.034
sales & personal service workers	.4295	.007*
plant & machinery operators/drivers	-.0728	.664
labourer & related workers	.0275	.870
Gross Annual Household Income:		
\$0-8K	.2255	.173
\$8-12K	.3934	.015
\$12-16K	.2370	.152
\$16-20K	.4231	.008*
\$20-25K	.3407	.036
\$25-30K	.3831	.018
\$30-35K	.3303	.043
\$35-40K	.3621	.025
\$40-50K	.3757	.020
\$50-60K	.3323	.042
\$60-70K	.3081	.060
\$70-80K	.2725	.098
\$80-100K	.2818	.087
\$100-120K	.3426	.035
\$120-150K	.2862	.082
\$150K & over	.2850	.083
Country of Birth:		
Australia	-.0487	.772
Canada	.3542	.029
Ireland	.2827	.086
New Zealand	.4276	.007*
South Africa	.1780	.285
United Kingdom	.2031	.221
United States of America	.3611	.026
China	.1028	.539
Germany	-.0114	.946
Greece	.1963	.238
Hong Kong	.1354	.418
India	-.0924	.581
Italy	.0911	.587
Lebanon	-.0526	.754
Malaysia	.0832	.620
Malta	-.2408	.145
Netherlands	-.0317	.850
Philippines	-.0219	.896
Poland	-.1430	.392
USSR	.0475	.777
Vietnam	-.0502	.765
Yugoslavia	.0326	.846
Other	.2483	.133
* p ≤ 0.01 (p values were rounded to 2 decimal places to assess statistical significance at p ≤ 0.01)		
** p ≤ 0.001		

From Table 4, positive correlates of the concentration of registered clubs in Sydney SLAs are high proportions of the resident population who:

- are aged 65-84 years;
- are widowed;
- own their own home;
- rent from private landlords;
- are employed;
- are sales and personal service workers;
- have a household income of \$16-20K;
- were born in New Zealand.

From Table 4, negative correlates of the concentration of registered clubs in Sydney SLAs are high proportions of the resident population who:

- are aged 0-19 years.

## **5.5 First Factor Analysis**

Because of the usual high incidence of cross-correlation between socio-demographic characteristics, related sets of the independent variables listed in Table 4 were subjected to factor analysis. The statistical output for this factor analysis is included as Appendix A. From the factors extracted, 34 new sets of variables were derived as shown in Table 5. These derived variables therefore each represent a set of highly intercorrelated socio-demographic independent variables.

**Table 5**  
**Original and Derived Variables from First Factor Analysis of Independent Variables**  
**Relating to Club Concentration**

Original Variables	Derived Variables
<b>Age:</b>	
0-14 years, 15-19 years	0-19 years
20-24 years, 25-29 years, 30-34 years, 35-39 years	20-39 years
40-44 years	40-44 years
45-49 years, 50-54 years, 55-59 years	45-59 years
60-64 years, 65-69 years, 70-74 years, 75-79 years, 80-84 years, 85 years & over	60 years & over
<b>Sex:</b>	
male	male
female	female
<b>Marital Status:</b>	
never married, separated, divorced	single
married	married
widowed	widowed
<b>Housing Status:</b>	
Department of Housing rental, other government rental	government rental
private rental	private rental
own	own
purchasing	purchasing
<b>Highest Educational Qualification:</b>	
higher degree, postgraduate diploma, bachelor degree, undergraduate diploma	tertiary
associate diploma, basic vocational	vocational
skilled vocational	skilled vocational
not qualified	not qualified
<b>Employment Status:</b>	
employed	employed
unemployed	unemployed
<b>Occupation:</b>	
managers, professionals	upper white collar
para-professionals, clerks, sales & personal service workers	lower white collar
tradespersons, plant & machinery operators/drivers, labourers & related workers	blue collar
<b>Household Income:</b>	
\$0-8K, \$8-12K, \$12-16K, \$16-20K, \$20-25K, \$25-30K, \$30-35K	low income
\$35-40K, \$40-50K, \$50-60K	middle income
\$60-70K, \$70-80K, \$80-100K, \$100-120K, \$120-150K, \$150K & over	high income
<b>Country of Birth (COB):</b>	
China, Greece, Lebanon, Yugoslavia	COB 1
Australia, Netherlands	COB 2
Canada, Ireland, New Zealand, UK, USA, Germany	COB 3
Hong Kong, Malaysia	COB 4
Poland, USSR	COB 5
India, Philippines, Malta	COB 6
South Africa	COB 7
Italy	COB 8

In order to check whether intercorrelations existed between the 34 derived sets of variables, a correlation matrix of these 34 variables was examined. This matrix is included as Appendix B where it is evident that a number of intercorrelations exist. Thus, a second factor analysis was conducted, as described below.

## 5.6 Second Factor Analysis

To reduce the incidence of cross-correlation between the 34 sets of derived variables (Table 5), a second factor analysis was conducted, with the statistical output included as Appendix C. From the factors extracted, 13 final sets of variables were derived as shown in Table 6. Thus, the final derived variables each represent a set of highly intercorrelated socio-demographic independent variables which were then used as possible predictors of the dependent variable, as explained in Section 5.7.

**Table 6**  
*Original and Derived Variables from Second Factor Analysis of Independent Variables Relating to Club Concentration*

<b>First Derived Variables</b>	<b>Final Derived Variables</b>
blue collar, not qualified, unemployed, COB 1, COB 6	lower class NESB
45-59 years, high income, upper white collar, tertiary, COB 3, COB 7	upper class ESB
0-19 years	children/teens
20-39 years, employed, low income, middle income, private rental, single	young singles
married, skilled vocational, vocational, lower white collar, COB 2	middle class Australians
purchasing	home purchasers
60 years & over, own, widowed	elderly
government rental	government renters
COB 4	Hong Kong/Malay background
40-44 years, COB 8	middle aged & Italian background
COB 5	Eastern Europeans
male	male
female	female

## 5.7 Regression Analysis

Stepwise multiple regression analysis was used to explore the relationship between the 13 final derived independent socio-demographic variables and the dependent variable, the concentration of Sydney registered clubs per SLA. Analysis was performed with SPSS REGRESSION, with the statistical output included as Appendix D.

As shown in Table 7, one variable (elderly) explained 27 percent of the variance in the concentration of Sydney registered clubs per SLA. That is, the derived variable, elderly was the best predictor of the concentration of Sydney registered clubs per SLA. The variable, elderly is comprised of proportions of the population who 1) are aged 60 years and over, 2) own their own home, and 3) are widowed. The regression equation reported was significant at  $p \leq .001$ .