Table 7
Stepwise Regression Between Concentrations of Sydney Registered Clubs and Final Derived Independent Variables

Variable	B	SE B	Beta	Multiple R	R^2
elderly	.004817	.001324	.518354	.51835	.26869

F = 13.22676
df = 1
p ≤ .0009

5.8 Summary

In summary, this section has explained the variables and procedures used to explore the relationship between the concentration of Sydney registered clubs and a range of socio-demographic characteristics of resident populations of Sydney SLAs. Due to the high incidence of cross-correlation between many of the independent variables, a two-stage factor analysis was used to extract a smaller set of composite variables. These derived variables were then used as possible predictors of the concentration of Sydney registered clubs in a stepwise multiple regression analysis. Results indicate that the best predictors of the concentration of clubs in Sydney SLAs were high proportions of the resident population who:

• are aged 60 years and over;

• own their own home;

• are widowed.

Section Six
Distribution of Poker Machine Expenditure in Sydney

As preliminary information, this section examines the distribution of poker machine expenditure in registered clubs in the Sydney Statistical Division. Poker machine expenditure is defined as the net amount spent, or in other words, the amount wagered less the amount won, by poker machine players. Conversely, by definition, it is the gross profit due to the operators of poker machines (Tasmanian Gaming Commission, 1996:3). Poker machine expenditure data were obtained from the NSW Department of Gaming and Racing for the 1994-95 financial year. It is important to note that this time period was prior to the opening of the Sydney Harbour Casino and the introduction of poker machines in NSW hotels, and so poker machine expenditure in this analysis refers only to that spent in registered clubs. For reasons of confidentiality, poker machine expenditure data were only available from the NSW Department of Gaming and Racing for groups of 20 clubs or more. Because some SLAs had fewer than 20 clubs, it was necessary to group some neighbouring SLAs together for the purpose of this analysis. These groups are referred to as Statistical Local Groups (SLGs).

6.1 Distribution of Poker Machine Expenditure in Sydney

Figure 4 shows the distribution of poker machine expenditure in the Sydney Statistical Division by SLG. The SLGs in Sydney with the highest poker machine expenditure are Blacktown, Penrith and the Blue Mountains ($131,200,122); Campbelltown and Liverpool ($84,250,602); and Fairfield ($80,564,943). Those SLGs with the lowest poker machine expenditure are Kur-ing-gai and Willoughby ($8,634,671); Mosman and Manly ($10,060,033); and Kogarah and Hurstville ($29,505,155).

6.2 Distribution of Per Capita Poker Machine Expenditure in Sydney

A more accurate picture of how poker machine expenditure is distributed throughout the Sydney region is given by examining poker machine expenditure per head of population, shown in Figure 5. To calculate the poker machine expenditure 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.

The Inner Sydney SLA was removed from the analysis as it was considered an outlier due to its disproportionately high poker machine expenditure per head of adult population ($8,451.35). 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 poker machine expenditure.

The SLGs with the highest poker machine expenditure per head of population are 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 are Kur-ing-gai and Willoughby (65.39); Hornsby and Baulkham Hills ($181.46); and Mosman and Manly ($190.04).

Figure 4
Distribution of Poker Machine Expenditure in Sydney Statistical Local Groups
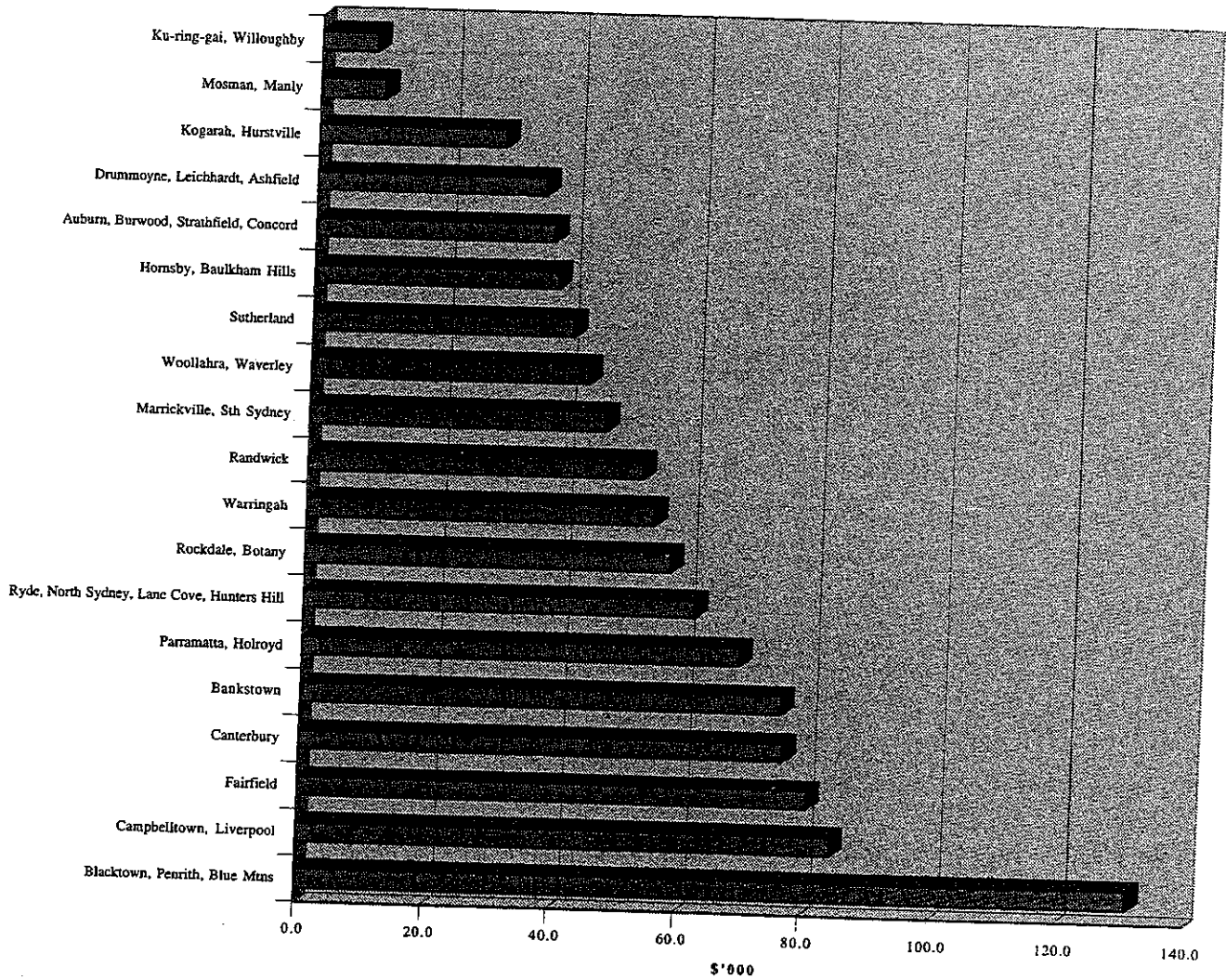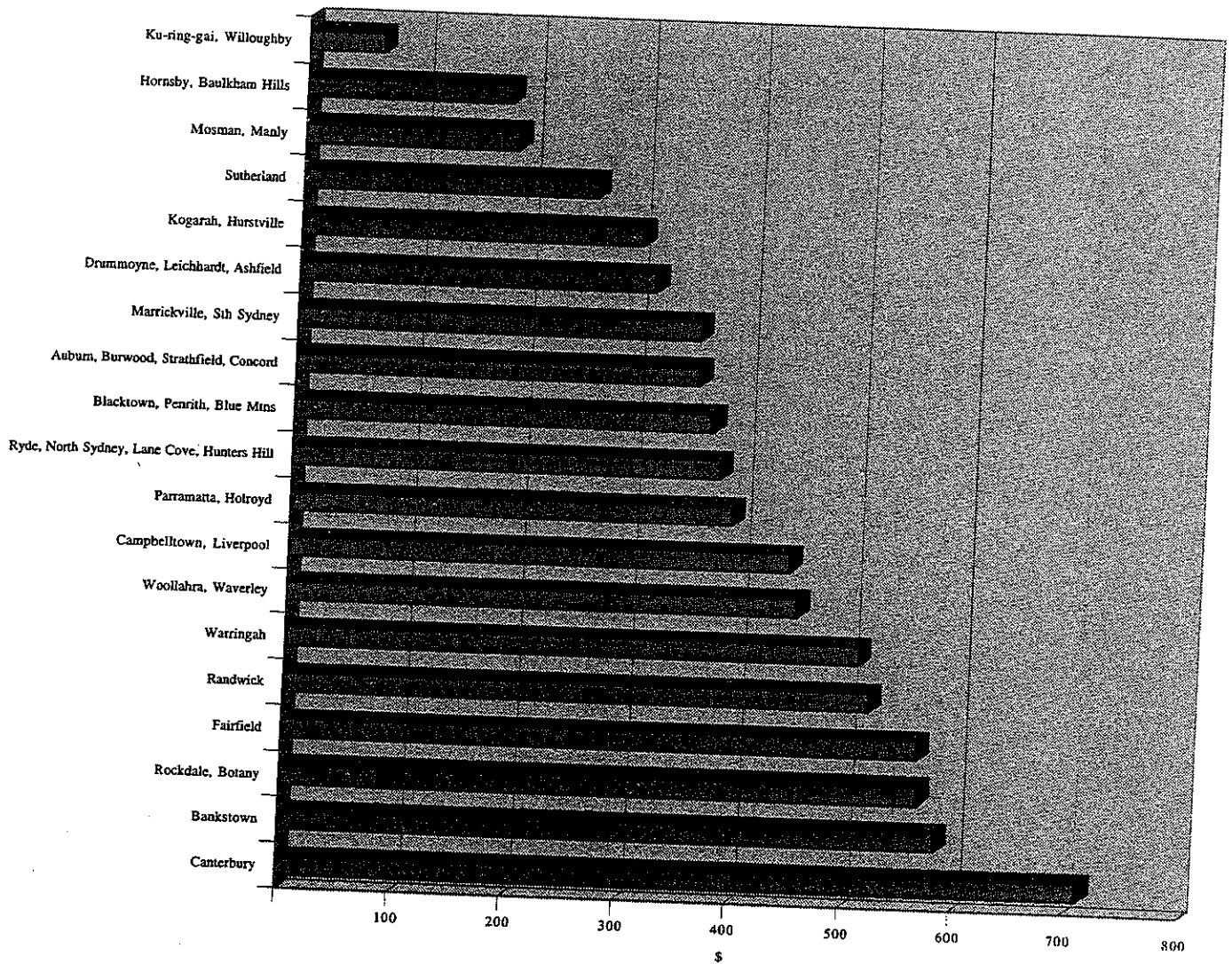
Figure 5
Poker Machine Expenditure Per Resident in Sydney Statistical Local Groups

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Section Seven
Socio-Demographic Characteristics that Support Poker Machine Gaming in Sydney Registered Clubs

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

7.1 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 per capita poker machine expenditure for each Sydney SLG, sourced from the NSW Department of Gaming and Racing as previously explained. The second data set consisted of selected socio-demographic characteristics for each Sydney SLG which was sourced from Census data from the Australian Bureau of Statistics (ABS).

7.2 Measures

The dependent variable for this analysis was the per capita poker machine expenditure for each Sydney SLG. The independent variables for this analysis were the selected socio-demographic characteristics as listed previously in Table 3.

For each SLG, 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 SLGs do not have equal populations.

7.3 Overview of Statistical Procedures Used

Data analysis, to be described further in the following sections, proceeded through the same steps as the analysis in Section Five.

- 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. The significance level for this procedure was set at $p \leq 0.01$.

- Principle Components Factor analysis (varimax rotation) of sets of the independent variables was then used to reduce the incidence of partial correlation between these variables. Based on this factor analysis, 30 new variables were deducted which each represent a set of independent variables which are highly intercorrelated.

- Pearson's Product Moment correlation was used to determine whether any partial correlations existed between the 30 derived variables. The significance level for this procedure was set at $p \leq 0.01$.

- Given that some of the 30 derived variables were intercorrelated, a second Principle Components Factor analysis was conducted to derive 11 variables which each represent a set of independent variables which are highly intercorrelated.

- These 11 variables were then used as possible predictor variables in a stepwise regression analysis with the dependent variable. The significance level for this procedure was set at $p \leq 0.01$.

7.4 Correlation Analysis

The results of the Pearson's Product Moment correlation between the per capita poker machine expenditure for each Sydney SLG and the selected socio-demographic characteristics are shown in Table 8.

Table 8
Correlation Coefficients Between Per Capita Poker Machine Expenditure in Sydney SLAs and Selected Socio-Demographic Characteristics

Socio-Demographic Characteristics	r value	p value ≤
Age:		
0-14 years	.1124	.647
15-19 years	.0218	.929
20-24 years	.4042	.086
25-29 years	.3567	.134
30-34 years	.2972	.217
35-39 years	.0532	.829
40-44 years	-.3606	.129
45-49 years	-.6183	.005*
50-54 years	-.4790	.038
55-59 years	-.0911	.711
60-64 years	.1838	.451
65-69 years	.1305	.594
70-74 years	-.0231	.925
75-79 years	-.1182	.630
80-84 years	-.2145	.378
85 years & over	-.3186	.184
Sex:		
males	.1927	.429
females	.0986	.688
Marital Status:		
never married	.0643	.794
married	.1505	.539
separated	.3941	.095
divorced	.1065	.664
widowed	.1344	.583
Housing Status:		
own	-.1267	.605
purchasing	-.1347	.582
Department of Housing rental	.4415	.058
other government rental	.3968	.093
private rental	.0697	.777
Highest Educational Qualification:		
higher degree	-.5748	.010*
postgraduate diploma	-.6540	.002*
bachelor degree	-.5622	.012*
undergraduate diploma	-.6228	.004*

associate diploma	-.4562	.050
skilled vocational	.2680	.267
basic vocational	-.3763	.112
not qualified	.7437	.000**
Employment:		
employed	-.1637	.503
unemployed	.6394	.003*
Occupation:		
managers	-.5977	.007*
professionals	-.6095	.006*
para-professionals	-.3309	.166
tradespersons	.5655	.012*
clerks	-.1158	.637
sales & personal service workers	-.2114	.385
plant & machinery operators/drivers	.7133	.001**
labourers & related workers	.7197	.001**
Gross Annual Household Income:		
$0-8K	.3962	.093
$8-12K	.2207	.364
$12-16K	.7596	.000**
$16-20K	.6168	.005*
$20-25K	.6250	.004*
$25-30K	.5393	.017
$30-35K	.4731	.041
$35-40K	.3689	.120
$40-50K	.3444	.149
$50-60K	-.1936	.427
$60-70K	-.4037	.087
$70-80K	-.4792	.038
$80-100K	-.5498	.015
$100-120K	-.6358	.003*
$120-150K	-.6542	.002*
$150K & over	-.6020	.006*
Country of Birth:		
Australia	-.2395	.323
Canada	-.5433	.016
Ireland	-.1038	.672
New Zealand	-.2302	.343
South Africa	-.4518	.052
United Kingdom	-.3582	.132
United States of America	-.4623	.046
China	.2457	.311
Germany	-.1261	.607
Greece	.5397	.017
Hong Kong	-.3443	.149
India	-.1236	.614
Italy	.2901	.228
Lebanon	.5929	.007*
Malaysia	-.0910	.711
Malta	.3109	.195
Netherlands	-.2479	.306
Philippines	.4384	.060
Poland	.3980	.091
USSR	.2085	.392
Vietnam	.4585	.048
Yugoslavia	.4840	.036
Other	.5194	.023

* $p \leq 0.01$ (p values were rounded to 2 decimal places to assess statistical significance at $p \leq 0.01$)
** $p \leq 0.001$

From Table 8, positive correlates of per capita poker machine expenditure in Sydney are high proportions of the resident population who:

- are not qualified;

- are unemployed;

- are tradespersons, plant and machinery operators/drivers, or labourers or related workers;

- have a gross annual household income of $12-25K;

- were born in Lebanon.

From Table 8, negative correlates of per capita poker machine expenditure in Sydney are high proportions of the resident population who:

- are aged 45-49 years;

- have a higher degree, postgraduate diploma, bachelor degree or undergraduate degree as their highest educational qualification;

- are managers or professionals;

- have a gross annual household income of $100K or over.

7.5 First Factor Analysis

Because of the high usual incidence of cross-correlation between socio-demographic characteristics, the independent variables listed in Table 8 were subjected to factor analysis. The statistical output for this factor analysis is included as Appendix E. From the factors extracted, 30 new sets of variables were derived as shown in Table 9. These derived variables therefore each represent a set of highly intercorrelated socio-demographic independent variables.

Table 9
Original and Derived Variables from First Factor Analysis of Independent Variables Relating to Per Capita Poker Machine Expenditure

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

In order to check whether intercorrelations existed between the 30 derived sets of variables, a correlation matrix of these 30 variables was examined. This matrix is included as Appendix F where it is evident that a number of intercorrelations exist. Thus, a second factor analysis was conducted, as described below.

7.6   Second Factor Analysis

To reduce the incidence of cross-correlation between the 30 sets of derived variables (Table 9), a second factor analysis was conducted, with the statistical output included as Appendix G. From the factors extracted, 11 final variables were derived as shown in Table 10. 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 variables, as explained in Section 7.7.

Table 10
Original and Derived Variables from Second Factor Analysis of Independent Variables Relating to Per Capita Poker Machine Expenditure

First Derived Variable	Final Derived Variable
not qualified, unemployed, COB 2, COB 4, COB 5, COB 8	lower class NESB
tertiary, white collar, high income, COB 1	upper class ESB
COB 7	
COB 6	Hong Kong/Malay background
	Eastern Europeans
married/widowed, own/purchasing, vocational, blue collar, medium income, employed, COB 3	middle class Australians
0-19 years, 45-59 years	
20-34 years, single, rental, low income	children/teens/middle aged
35-44 years	young singles
60-74 years, 75 years & over	younger middle aged
male	elderly
female	male
	female

7.7   Regression Analysis

Stepwise multiple regression analysis was used to explore the relationship between the 11 final derived socio-demographic independent variables and the dependent variable, per capita poker machine expenditure per Sydney SLG.   Analysis was performed with SPSS REGRESSION, with the statistical output included as Appendix H.

As shown in Table 11, one variable (lower class NESB) explained 56 percent of the variance in the per capita poker machine expenditure per Sydney SLG. That is, the derived variable, lower class NESB was the best predictor of the per capita poker machine expenditure per Sydney SLG. The variable, lower class NESB consisted of proportions of the population who 1) were born in Malta, Greece, Lebanon, China, Italy, Vietnam, Yugoslavia, India or the Philippines, 2) have no vocational or tertiary qualifications and 3) are unemployed. The regression equation reported was significant at $p \le .001$.

Table 11
Stepwise Regression Between Per Capita Poker Machine Expenditure and Final Derived Independent Variables

Variable	B	SE B	Beta	Multiple R	R^2
lower class NESB	7.064470	1.516840	.748746	.74875	.56062
F = 21.69100 df = 1 p ≤ .0002					

7.8 Summary

In summary, this section has explained the variables and procedures used to explore the relationship between per capita poker machine expenditure and a range of socio-demographic characteristics of resident populations of Sydney SLGs. Due to the high incidence of cross-correlation between many of the independent variables, a two-stage factor analysis was used to extract a smaller set of composite variables. These derived variables were then used as possible predictors of per capita poker machine expenditure in a stepwise multiple regression analysis. Results indicate that the best predictors of per capita poker machine expenditure in Sydney SLGs were high proportions of the 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.

Section Eight
Discussion of the Results

This section will firstly review the findings of previous Australian studies into the socio-demographic characteristics of gaming machine players. This will then provide a basis for comparing the results of the current study pertaining to both poker machine expenditure and club concentration in Sydney SLAs.

8.1 Prior Australian Research into Socio-Demographic Characteristics of Gaming Machine Players

Despite the popularity and continued growth of poker machine gaming, limited data have been collected about poker machine playing in NSW clubs, particularly relating to the social and demographic characteristics of club poker machine players. However, with club poker machine gambling representing 84.1% of all gaming expenditure in NSW in 1994-95 (Tasmanian Gaming Commission, 1996:142), it is widely accepted that this type of gambling is responsible for loss of control amongst many problem gamblers who present for treatment (Keys Young, 1995).

At the individual and community levels, little recent NSW data exist regarding the types of people who play poker machines in clubs, their social backgrounds, demographic characteristics and ethnic origins. In fact, only two studies have previously developed a profile of club poker machine players - those by Caldwell in 1972 and Dickerson et al. in 1984. Both of these studies were each restricted to members of one club, the Queanbeyan Leagues Club in NSW and the Southern Cross Club in the ACT, respectively, both of which then drew much of their patronage from the ACT. Both studies were also limited to behavioural aspects of poker machine players, with little insights given into what social, demographic and ethnic characteristics support club poker machine playing.

More recently, broad-based state surveys in Australia have provided additional data on gambling patterns, including those of gaming machine players. These studies include those by the State Government of Victoria (1994), the Department of Family Services and Aboriginal and Torres Strait Islander Affairs (1995) in Queensland, DBM Consultants (1995) in Victoria, the Australian Institute for Gambling Research (1996) in NSW and Delfabbro and Winefield (1996) in South Australia. Another study has focused on gambling patterns in four Australian state capitals - Sydney, Melbourne, Adelaide and Brisbane - (Australian Institute for Gambling Research, 1995), but did not report separate results for gaming machine play. The main results of these studies pertaining to the socio-demographic characteristics of gaming machine players are summarised below, and suggest some common characteristics amongst gaming machine players.

The State Government of Victoria (1994) reported on poker machine playing in NSW and the ACT in order to assess the likely impacts of the introduction of electronic gaming machines (EGMs) in Victoria. Of the 3,000 respondents to their survey, 12.3 per cent reported expenditures on poker machines. The socio-economic profiles of these respondents revealed that:

• The average expenditure of players was $560 per year.

• Males play twice as much as females, and spend considerably more.

- Poker machine playing is quite common for all age groups, with the exception of the young (under 17) and the very old (80 years and over). The 20-24 year old and 65-69 year old age groups play more often than others.

- Separated, widowed and single people play less than average, while divorced and married people play the most.

- The incidence of poker machine playing is higher if there are no dependent children, or if children are older than 14 years of age. Poker machine expenditure is less with the presence of dependent children below 14 years.

- Wage earners, public renters and couples over 65 years have a higher incidence of playing.

- Social factors other than income appear to play a significant role in poker machine playing. For example, those on social benefits were only slightly less likely to play than wage earners, while those earning over $70,000 per year were less likely to play.

- Wage earners and those who earn most of their income from assets spend more than average on poker machines, whereas business people spend less.

- Asian born and European born people spend considerably more than average on poker machines.

- 'Big spenders' on poker machines tend to have below average income and are over-represented by recipients of social benefits, public renters, those living in one bedroom accommodation and the young (under 30 years of age).

The Department of Family Services and Aboriginal and Torres Strait Islander Affairs (1995) administered a survey of 500 people in Brisbane, collecting data on patterns of machine playing, social and economic well-being and demographic data. The study also involved an analysis of characteristics of clients attending the Breakeven Centres for problem gambling. The main findings were that:

- 43% of the adult population of Brisbane had played a gaming machine in the 12 months prior to May 1994.

- Men were more likely to have played machines than women.

- Those under 25 years of age were more likely to have played machines than those who are older.

- Employed people were more likely to have played machines than the unemployed, pensioners or those engaged in home duties.

- 10 % of players reported they play monthly or more often.

- 80% of players spend $20 or less per session, while 6% spend over $40 per session.

- Money for playing gaming machines came from household budgets for 25%, from savings for 16% and from another form of gambling for 6% of players.

- 20% of problem gamblers were women, with gaming machines being the preferred form of gambling for 70% of these.

- 80% of problem gamblers were men, with over 60% of male problem gamblers preferring betting over gaming machines.

The findings of the third study into community gambling patterns in Victoria (DBM Consultants, 1995) revealed that:

- 32% of the general community nominated electronic gaming machines (EGMs) as their favourite form of gambling, spending an average of $32 per visit on the machines.

- Respondents with lower blue collar occupations had the greatest exposure to gambling, were more likely to use EGMs regularly and were twice as likely to be 'committed gamblers'.

- EGMs have their greatest appeal amongst the young (under 30), lower white collar workers and those on low incomes.

- The highest average outlay on EGMs occurs in the 60 years and over age group.

In NSW, a recent study by the Australian Institute for Gambling Research (1996) of a stratified sample of 1,390 city and country residents revealed that:

- Gaming machines are the favourite form of gambling for 18% of men and women.

- 5.9% play poker machines weekly, 8.7% play monthly, 23.4% play less often and 62.0% never play.

- More men than women play poker machines at least weekly.

- More country than city residents play poker machines at least weekly.

- Mean weekly spend on poker machines is around $10.

- 19.3% of men and 17.2% of women nominated poker machines as their favourite form of gambling.

- 23.8% of single respondents, compared to 14.8% of partnered respondents nominated poker machines as their favourite form of gambling.

In South Australia, Delfabbro and Winefield (1996) conducted a survey of community gambling patterns involving a random sample of 1,206 people, weighted to reflect the general state population. Their findings revealed that involvement in poker machine gambling was most strongly associated with:

- Men or women aged 25-34 years.

- Full-time employment.

- Blue collar workers.

- Household income of $40,000-$50,000 per annum.

They also found that poker machine players spent an average of $14 per session, with 70% spending $10 or less. Only 2% of poker machine players spent more than $50 per session. The average poker machine player spent $305 per year.

While direct comparisons across these studies is difficult due to the different methodologies employed, gaming machine play appears to be the most favoured form of gambling for a substantial minority of people, and has higher than average participation rates amongst males, those in the 20-34 year and over 60 year old age groups, blue collar workers on low to medium incomes and those with no dependent children under 14 years. The findings also suggest that some ethnic groups are more inclined to play gaming machines than others.

While the studies cited above provide very useful broad-based patterns of gambling at the state and national levels, the present study is the first attempt to explore the socio-demographic characteristics which support registered clubs and their poker machine gaming in the Sydney Statistical Division.

8.2 Comparison of Current Findings with Prior Australian Research

The current study found a number of predictors of per capita poker machine expenditure in Sydney SLGs. In terms of ethnicity, the study identified indications of particular ethnic groups associated with high average poker machine outlays. SLGs in Sydney with high proportions of people born in Malta, Greece, Lebanon, China, Italy, Vietnam, Yugoslavia, India or the Philippines appear to disproportionately contribute to high expenditure on poker machines. In terms of education and employment status, those SLGs with high proportions of people with no vocational or tertiary qualifications and who are unemployed, also appear to have high poker machine expenditure.

While these results broadly support previous profiles of gaming machine players as predominantly from lower socio-economic groups, more specific comparisons are difficult due to the different variables examined in previous Australian research.

In terms of country of birth, the State Government of Victoria (1994), DBM Consultants (1995) and Delfabbro and Winefield (1996) examined its relationship with poker machine expenditure. The State Government of Victoria (1994) study was the only one which reported any link between ethnicity and poker machine expenditure, concluding that Asian born and European born people spend considerably more than average on poker machines. Other studies which have examined this relationship used an insufficient sample size or too broadly based ethnic groupings to allow specific ethnic groups to be examined. For example, DBM Consultants (1995) categorised country of birth as Australia/New Zealand, UK/North America, Europe, Middle East/Africa, Asia and Other. Similarly Delfabbro and Winefield (1996) used categories of Australia/New Zealand, UK, Other Europe, Asia/Pacific, and Other. Utilising such broad categories may well have obscured any relationship between country of birth and poker machine expenditure, while in the South Australian study (Delfabbro and Winefield, 1996), very small numbers of respondents in each of these groups (e.g.: 2 respondents from the Asia/Pacific) meant that relationships could not be reliably examined.

In terms of educational and vocational qualifications, none of the other Australian studies reviewed here appeared to have examined its relationship with poker machine expenditure. While questions relating to educational qualifications were included in the South Australian survey (Delfabbro and Winefield, 1996), no results pertaining to the relationship between this variable and poker machine expenditure were reported.

Concerning employment status, contradictory results have been found amongst both previous and current studies. For example, the State Government of Victoria (1994) found that recipients of social benefits (not necessarily unemployment benefits) were over represented amongst 'big spenders' on poker machines. The Department of Family Services and Aboriginal and Torres Strait Islander Affairs (1995) found that employed people were more likely to have played machines than the unemployed, pensioners or those engaged in home duties. Delfabbro and Winefield (1996) revealed a significant association between 'non-worker' status and the frequency with which people gambled on poker machines. However, it appears that much of this association was due to the 'retired' component of the 'non-worker' category. Their analysis of participation rates in poker machine gambling revealed that employed people were significantly more likely to have gambled on the machines in the previous 12 months.

8.3 Comparison of Sydney Areas with High and Low Per Capita Poker Machine Expenditure

The Sydney SLGs 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).

These figures show that poker machine expenditure in the highest spending area, Canterbury was over ten times more than the lowest spending area, Kur-ing-gai and Willoughby. Comparing the socio-demographic profiles of these two areas reveals that, generally speaking, Canterbury is characterised by a comparatively young population, with low educational qualifications and high proportions of residents with no post-school qualifications. A disproportionate amount of people live in Department of Housing residences or rent from private providers. High unemployment is also a feature of the area, while over two-thirds of employed people work in blue collar and lower white collar occupations. High unemployment and the distribution of occupations result in low annual personal and household incomes. Most of the population earns $20,000 or less per year and over one quarter of households earn less than this amount. Another feature of Canterbury is the high proportion of various ethnic groups in the community. Relatively large populations of residents born in Lebanon, Greece, Vietnam, China, Italy and the Philippines characterise the area, with 42% of the population born in non-English speaking countries.

In comparison, Kur-ing-gai-Willoughby is a far more affluent area. The population is older than Canterbury and is better educated, with nearly one-third of residents having tertiary qualifications. Home ownership is common, with nearly 80% of the population either owning or purchasing their residence. Employment levels are also high, with half the workforce engaged in professional or managerial occupations. This results in comparatively high annual personal and household incomes, with nearly one-third of residents earning over $40,000 per year and over half of all households earning over this amount. Kur-ing-gai-Willoughby is characterised by a predominantly Anglo-Saxon population, with over 80% of residents born in Australia or another English speaking country. Compared to Canterbury, the proportion of ethnic residents is low, with people born in Hong Kong being the main non-Anglo-Saxon group, along with small populations of people born in South Africa, China, Yugoslavia, Malaysia, Italy and India. The area also has a relatively high proportion of residents born in the U.K.

8.4 Comparison of Sydney Areas with High Per Capita Poker Machine Expenditure and High Club Concentration

Interestingly, the profile of Sydney SLAs with high average poker machine expenditure contrasts markedly with the profile of Sydney SLAs where registered clubs predominate. Sydney areas with the highest concentrations of registered clubs per population were found to be 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).

Statistical analysis indicates that the best predictors of the concentration of clubs in Sydney SLAs were proportions of the resident population who:

* are aged 60 years and over;

* own their own home;

* are widowed.

Comparison of these results with prior research is not possible, as to the authors' knowledge, no previous studies have been conducted in this area. However, the differences between the socio-demographic profile of populations which support Sydney registered clubs and those which support club poker machine gaming could be interpreted as underpinning the role of Sydney registered clubs as providers of other facilities and services apart from poker machine gaming. However, further research would be needed to verify this assumption.

8.5 Summary

This section has compared the results of the study with prior Australian research into socio-demographic characteristics which support poker machine gambling. No previous research was located with which to compare the results pertaining to socio-demographic characteristics associated with high concentrations of registered clubs in Sydney. No commonality was found between the socio-demographic characteristics which appear to support registered clubs and those which appear to support high per capita poker machine expenditure. However, the profile of Sydney populations which spend highly on poker machines broadly supports the lower socio-economic profile identified in previous Australian studies.

Section Nine
Limitations of the Study

The result of this study should be interpreted with the following limitations in mind.

- Because the study aimed to provide only a broad-based profile of those areas in Sydney which support registered clubs and poker machine gaming, the analysis is based on populations, rather than individuals. Further research is necessary to establish conclusively whether the socio-demographic characteristics associated here with high levels of poker machine expenditure apply at the individual level. The research planned for the second stage of this study will address this issue.

- The analysis was subject to the limitations of ABS data and its recency and accuracy. Given that the most recent published Census data at the time of the study was in 1991, much of the analysis was based on projections provided by the ABS of the various socio-demographic characteristics in the various Sydney SLAs. Nevertheless, the ABS projections are based on trends apparent from the 1991 and previous Censes.

- The data analysis was based only on the resident population in the Sydney SLAs and did not take into account poker machine expenditure by tourists.

- Because it was necessary to exclude the Inner Sydney SLA from the analysis due to potential distortion of the results, the poker machine expenditure and socio-demographic characteristics of this area were not examined.

- For reasons of practicality, only the most numerous ethnic groups by country of birth were examined, as the populations of other ethnic groups were too small for any results to be reliable.

- Analysis of the concentration of registered clubs in Sydney was unable to take account of the varying sizes of Sydney clubs, due to unavailability of club membership data. This prevented direct comparison of the socio-demographic characteristics of populations which support registered clubs in Sydney and those of populations which support poker machine expenditure.

References

Anon, (1996). "Sydney Harbour Falls Short of Expectations", *International Gaming & Wagering Business*, Vol. 17, No. 4, p.20.

Australian Institute for Gambling Research, (1995). "Estimating the Extent and Degree of Gambling Related Problems in the Australian Population: A National Survey", in Department of Family Services and Aboriginal and Islander Affairs, (1995). *Report of the First Year of the Study into the Social and Economic Impact of the Introduction of Gaming Machines to Queensland Clubs and Hotels*, Department of Family Services and Aboriginal and Islander Affairs, Brisbane, pp. 131-149.

Australian Institute for Gambling Research, (1996). *An Examination of the Socio-Economic Effects of Gambling on Individuals, Families and the Community, Including Research into the Costs of Problem Gambling in New South Wales*, University of Western Sydney, Macarthur, Sydney.

Caldwell, G.T., (1972). *Leisure Co-Operatives: The Institutionalization of Gambling and the Growth of Large Leisure Organizations in New South Wales*, unpublished doctoral thesis, Australian National University, Canberra.

DBM Consultants Pty Ltd, (1995). *Report on the Findings of Survey of Community Gambling Patterns*, DBM Consultants, Melbourne.

Delfabbro, P.H. and Winefield, A.H., (1996). *Community Gambling Patterns and the Prevalence of Gambling-Related Problems in South Australia (with particular reference to gaming machines)*, report commissioned by the Department for Family and Community Services, University of Adelaide, Adelaide.

Department of Family Services and Aboriginal and Islander Affairs, (1995). *Report of the First Year of the Study into the Social and Economic Impact of the Introduction of Gaming Machines to Queensland Clubs and Hotels*, Department of Family Services and Aboriginal and Islander Affairs, Brisbane.

Dickerson, M., Bayliss, D. and Head, P., (1984). *Survey of a Social Club Population of Poker Machine Players*, unpublished research paper, The Australian National University, Canberra.

Kelly, J., (1997). 1997 "Australia and New Zealand Gambling Report", supplement to *International Gaming and Wagering Business*, March.

Keys Young, (1996). *Casino Community Benefit Fund Study 1*, NSW Department of Gaming and Racing, Sydney.

New South Wales Department of Gaming and Racing, (1995). *Gaming Analysis 1993-94*, New South Wales Department of Gaming and Racing, Sydney.

New South Wales Department of Gaming and Racing, (1996). *Gaming Analysis 1994-95*, New South Wales Department of Gaming and Racing, Sydney.

New South Wales Department of Gaming and Racing, (1997). *Gaming Analysis 1995-96*, New South Wales Department of Gaming and Racing, Sydney.

Norusis, M.G., (1994). *SPSS 6.1 Base System User's Guide*, SPSS Inc., Chicago.

Registered Clubs Association, (1994). *Directors' Guide*, Registered Clubs Association, Sydney.

State Government of Victoria, (1994). *Review of Electronic Gaming Machines in Victoria*, State Government of Victoria, Melbourne.

Statsoft, (1991). *CSS Statistica*, Statsoft, Tulsa Oklahoma.

Tabachnick, B.G. and Fidell, L.S., (1989). *Using Multivariate Statistics*, 2nd edition, HarperCollins Publishers, Inc., New York.

The Tasmanian Gaming Commission, (1996). *Australian Gambling Statistics 1972-73 to 1994-95*, The Tasmanian Gaming Commission, Hobart.

Tildesley, E.M., (1970). *A History of the Queen's Club: Some Memories and Records of the First Fifty-Eight Years*, Halstead Press, Sydney.

Appendix A

Concentration of Sydney Registered Clubs:

Results of First Factor Analysis of Independent Variables

CONCENTRATION OF SYDNEY REGISTERED CLUBS

Results of First Factor Analysis of Independent Variables

Age
Rotated Factor Matrix:

	Factor 1	Factor 2	Factor 3	Factor 4
TOT0_14	-.60373	-.75571	-.19218	-.03878
TOT15_19	-.42155	-.73381	.24858	-.20034
TOT20_24	-.35886	.80446	-.01385	-.37888
TOT25_29	-.00484	.93133	-.29700	.04400
TOT30_34	-.06204	.86556	-.40038	.23136
TOT35_39	-.16736	.58214	-.42027	.58036
TOT40_44	-.22519	.03141	.20151	.89200
TOT45_49	-.02212	-.27528	.85318	.34823
TOT50_54	.24966	-.19761	.92921	-.04744
TOT55_59	.54414	-.27690	.58129	-.31870
TOT60_64	.73335	-.11925	.16335	-.42479
TOT65_69	.89431	-.10307	.08295	-.33411
TOT70_74	.91938	-.03612	.07855	-.26269
TOT75_79	.94830	.03852	.08473	-.10632
TOT80_84	.95365	.13277	.07448	.06911
TOT85PLU	.87758	.11284	.09436	.19160

Marital Status
Rotated Factor Matrix:

	Factor 1	Factor 2
TOTNEVMA	.84079	.43282
TOTMARRI	-.72017	.48470
TOTSEPAR	.89280	.00273
TOTDIVOR	.89135	.37287
TOTWIDOW	.15731	.93243

Housing Status
Rotated Factor Matrix:

	Factor 1	Factor 2
OWNED	-.88455	.25848
PURCHASE	.03134	-.85905
HC_RENT	.83302	.00430
GOV_RENT	.57723	.45638
OTH_RENT	-.05831	.76331

Highest Educational Qualification
Rotated Factor Matrix:

	Factor 1	Factor 2
HIGH_DEG	.95986	.22377
PG_DIPLO	.77829	.55201
BACH_DEG	.92091	.34398
UG_DIPLO	.76700	.61993
ASS_DIP	.11354	.94434
SKILL_VO	-.85192	.44124
BASIC_VO	.19006	.95217

Occupation
Rotated Factor Matrix:

	Factor 1	Factor 2
TOT_MGRS	-.78404	.54828
TOT_PROF	-.82014	.46692
TOT_PARA	-.16530	.83555
TO_TRADE	.94945	.20414
TO_CLERK	.00000	.94192
TO_SALES	-.40240	.84231
TO_PLANT	.91207	-.33609
TOT_LBR	.89615	-.18326

Gross Annual Household Income
Rotated Factor Matrix:

	Factor 1	Factor 2	Factor 3
HI0_8K	.91105	-.02123	-.11596
HI8_12K	.91957	.20359	.13470
HI12_16K	.81149	-.46569	.06830
HI16_20K	.91110	-.05825	.24088
HI20_25K	.93215	-.15114	.19906
HI25_30K	.87180	.00699	.41169
HI30_35K	.76480	.04778	.57689
HI35_40K	.66682	.12819	.68806
HI40_50K	.49034	-.02297	.84679
HI50_60K	.19236	.41702	.86607
HI60_70K	-.04095	.71109	.65937
HI70_80K	.00358	.76756	.53650
HI80_100	.00398	.88102	.39155
H100_120	-.02335	.96908	.10165
H120_150	-.11071	.97721	-.00382
HI150KUP	-.01289	.95652	-.06128

Country of Birth
Rotated Factor Matrix:

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
TOT_AUST	-.75221	.00907	-.19095	-.42416	-.19990
TOT_CAN	-.30184	.83901	.10933	-.02258	-.23457
TOT_IRE	-.17359	.73024	.08194	.48597	.09898
TOT_NZ	-.06352	.94073	.03116	.10861	-.09878
TOT_SAF	-.29566	.35001	.16260	.39335	-.40329
TOT_UK	-.61672	.65994	-.20372	-.08425	-.14294
TOT_US	-.26324	.84003	.04094	.07186	-.27544
TO_CHINA	.53957	.05195	.45885	.18248	.29942
TO_GERMA	-.46072	.48066	-.28077	.42906	-.17019
TO_GREEC	.76165	.03422	.04785	-.22968	.00592
TOT_HK	.11802	-.00116	.92501	-.05635	-.12277
TO_INDIA	.01190	-.17715	.61377	.26889	.62478
TO_ITALY	.13554	-.18106	.04463	.07457	-.03466
TOT_LEB	.64796	-.36554	.05953	-.00990	.23671
TOT_MAL	-.04863	.10233	.81135	-.01856	-.00417
TO_MALTA	.05818	-.33300	-.34370	.01892	.57663
TOT_NETH	-.72898	.29392	-.24359	-.17074	-.00178
TO_PHILI	.47044	-.15717	.06485	.06101	.75042
TOT_POL	.11381	.03450	-.06760	.90563	.17564
TOT_USSR	.09319	.13749	.04086	.85403	-.04983
TOT_VIET	.67079	-.27646	-.23493	.17555	.11123
TOT_YUGO	.70295	-.27754	-.18061	-.05844	.08952

	Factor 6
TOT_AUST	.09207
TOT_CAN	.22067
TOT_IRE	-.24995
TOT_NZ	.05216
TOT_SAF	.39240
TOT_UK	.25639
TOT_US	.19412
TO_CHINA	-.39883
TO_GERMA	.38306
TO_GREEC	-.25856
TOT_HK	-.04321
TO_INDIA	-.11774
TO_ITALY	-.89671
TOT_LEB	.01043
TOT_MAL	.01733
TO_MALTA	.03906
TOT_NETH	.27836
TO_PHILI	.01815
TOT_POL	-.07601
TOT_USSR	.01396
TOT_VIET	.15117
TOT_YUGO	.00537

Appendix B

Concentration of Sydney Registered Clubs:

Correlation Matrix of Derived Variables from the First Factor Analysis of
Independent Variables

CONCENTRATION OF SYDNEY REGISTERED CLUBS

Correlation Matrix of Derived Variables from the First Factor Analysis
of Independent Variables

	TOT0_19	TOT20_39	TO40_44	TOT45_59	TOT60PLU	SINGLE
TOT0_19	1.0000	-.6344	.0063	-.0240	-.5766	-.8472
	(38)	(38)	(38)	(38)	(38)	(38)
	P= .	P= .000	P= .970	P= .886	P= .000	P= .000
TOT20_39	-.6344	1.0000	.0882	-.5869	-.1868	.8084
	(38)	(38)	(38)	(38)	(38)	(38)
	P= .000	P= .	P= .599	P= .000	P= .262	P= .000
TO40_44	.0063	.0882	1.0000	.1180	-.3450	.0927
	(38)	(38)	(38)	(38)	(38)	(38)
	P= .970	P= .599	P= .	P= .480	P= .034	P= .580
TOT45_59	-.0240	-.5869	.1180	1.0000	.3395	-.1643
	(38)	(38)	(38)	(38)	(38)	(38)
	P= .886	P= .000	P= .480	P= .	P= .037	P= .324
TOT60PLU	-.5766	-.1868	-.3450	.3395	1.0000	.1868
	(38)	(38)	(38)	(38)	(38)	(38)
	P= .000	P= .262	P= .034	P= .037	P= .	P= .261
SINGLE	-.8472	.8084	.0927	-.1643	.1868	1.0000
	(38)	(38)	(38)	(38)	(38)	(38)
	P= .000	P= .000	P= .580	P= .324	P= .261	P= .
MARRIED	.2358	-.5863	-.3191	.4003	.3222	-.4254
	(38)	(38)	(38)	(38)	(38)	(38)
	P= .154	P= .000	P= .051	P= .013	P= .049	P= .008
WIDOWED	-.7063	.0954	-.2804	.1308	.8926	.4839
	(38)	(38)	(38)	(38)	(38)	(38)
	P= .000	P= .569	P= .088	P= .434	P= .000	P= .002
GOVTRENT	.0523	.4138	-.0914	-.4987	-.3930	.2907
	(38)	(38)	(38)	(38)	(38)	(38)
	P= .755	P= .010	P= .585	P= .001	P= .015	P= .077
OTHERREN	-.8877	.8106	.0777	-.1882	.2573	.8965
	(38)	(38)	(38)	(38)	(38)	(38)
	P= .000	P= .000	P= .643	P= .258	P= .119	P= .000
OWN	-.4449	-.3191	-.2720	.5470	.8739	.0590
	(38)	(38)	(38)	(38)	(38)	(38)
	P= .005	P= .051	P= .099	P= .000	P= .000	P= .725

	TOT0_19	TOT20_39	TO40_44	TOT45_59	TOT60PLU	SINGLE
PURCHASI	.5412 (38) P= .000	-.2446 (38) P= .139	.3953 (38) P= .014	.0894 (38) P= .593	-.5643 (38) P= .000	-.3364 (38) P= .039
TERTIARY	-.6773 (38) P= .000	.2355 (38) P= .155	.2902 (38) P= .077	.4126 (38) P= .010	.4206 (38) P= .009	.6134 (38) P= .000
BASICVOC	-.3056 (38) P= .062	-.1241 (38) P= .458	.1806 (38) P= .278	.5077 (38) P= .001	.3398 (38) P= .037	.1481 (38) P= .375
SKILLVOC	.2693 (38) P= .102	-.1808 (38) P= .277	-.2400 (38) P= .147	-.0771 (38) P= .646	-.0746 (38) P= .656	-.2919 (38) P= .075
PROFESSI	-.5965 (38) P= .000	.1397 (38) P= .403	.3018 (38) P= .066	.5159 (38) P= .001	.3807 (38) P= .018	.5227 (38) P= .001
WHITECOL	-.5268 (38) P= .001	.2139 (38) P= .197	.0459 (38) P= .785	.3536 (38) P= .029	.2897 (38) P= .078	.4586 (38) P= .004
BLUECOL	.3020 (38) P= .065	.0968 (38) P= .563	-.2724 (38) P= .098	-.4859 (38) P= .002	-.2975 (38) P= .070	-.2011 (38) P= .226
LOWHI	-.7168 (38) P= .000	.7519 (38) P= .000	-.1056 (38) P= .528	-.4556 (38) P= .004	.2510 (38) P= .128	.7741 (38) P= .000
MEDHI	-.5747 (38) P= .000	.5433 (38) P= .000	.0703 (38) P= .675	-.1519 (38) P= .363	.1497 (38) P= .370	.5429 (38) P= .000
HIGHHI	-.5296 (38) P= .001	.0086 (38) P= .959	.1985 (38) P= .232	.6029 (38) P= .000	.4375 (38) P= .006	.4040 (38) P= .012
COB 1	.0017 (38) P= .992	.1513 (38) P= .365	-.3030 (38) P= .064	-.4119 (38) P= .010	.0411 (38) P= .806	-.0377 (38) P= .822

	TOT0_19	TOT20_39	TO40_44	TOT45_59	TOT60PLU	SINGLE
COB 2	.1492 (38) P= .371	-.3690 (38) P= .023	.0908 (38) P= .588	.4375 (38) P= .006	.0620 (38) P= .712	-.1156 (38) P= .489
COB 3	-.5095 (38) P= .001	.3661 (38) P= .024	.2755 (38) P= .094	.2238 (38) P= .177	.0851 (38) P= .612	.6320 (38) P= .000
COB 4	-.3024 (38) P= .065	-.0593 (38) P= .723	-.1213 (38) P= .468	.2427 (38) P= .142	.4293 (38) P= .007	.0505 (38) P= .763
COB 5	-.2175 (38) P= .190	.3254 (38) P= .046	-.2828 (38) P= .085	-.2848 (38) P= .083	.0508 (38) P= .762	.3052 (38) P= .062
COB 6	.2707 (38) P= .100	.1258 (38) P= .452	-.1719 (38) P= .302	-.4251 (38) P= .008	-.3352 (38) P= .040	-.1638 (38) P= .326
COB 7	-.2150 (38) P= .195	-.0661 (38) P= .693	-.0264 (38) P= .875	.4281 (38) P= .007	.1996 (38) P= .230	.1663 (38) P= .318
COB 8	-.1628 (38) P= .329	.0268 (38) P= .873	-.0188 (38) P= .911	-.1301 (38) P= .436	.2729 (38) P= .097	.0235 (38) P= .889
ML_TOTAL	.3981 (38) P= .013	-.0317 (38) P= .850	-.1100 (38) P= .511	-.2876 (38) P= .080	-.3828 (38) P= .018	-.1494 (38) P= .371
FEM_TOTA	-.3948 (38) P= .014	.1562 (38) P= .349	-.1076 (38) P= .520	-.1279 (38) P= .444	.4460 (38) P= .005	.2240 (38) P= .176
TOT_EMP	-.6917 (38) P= .000	.3737 (38) P= .021	.1117 (38) P= .504	.3049 (38) P= .063	.3256 (38) P= .046	.6663 (38) P= .000
TOT_UEMP	.0027 (38) P= .987	.5308 (38) P= .001	-.1455 (38) P= .383	-.6753 (38) P= .000	-.3863 (38) P= .017	.2445 (38) P= .139
NOT_QUAL	-.1014 (38) P= .545	.2509 (38) P= .129	-.4261 (38) P= .008	-.3772 (38) P= .020	.0549 (38) P= .743	.1922 (38) P= .248