

Victorian Casino and Gaming Authority

Report of the 1999
Longitudinal Community
Impact Study:
Main Report

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1 Executive Summary

KPMG Consulting was engaged by the Victorian Casino and Gaming Authority to undertake a social and economic impact study of gaming in specified regions of Victoria. The municipalities investigated were the Cities of Greater Dandenong, Greater Geelong, Maribyrnong, Moreland, the Rural City of Mildura and the Shire of Wellington in the eastern part of the State.

Of the six local government regions covered by this study, two — Maribyrnong and Dandenong — have significantly higher numbers of gaming machines per adult than the Victorian average, with another two — Wellington and Geelong — being above the State average. This pattern is also largely reflected in gaming expenditure per adult — expenditure per person is particularly high in Maribyrnong and Dandenong.

Our study has found:

- widespread disapproval of gambling in the six study regions (see section 5.2.1);
 - consistent with the findings of previous state-wide and local studies;
- disapproval of gambling is fairly uniform across the six regions (see section 5.2.1):
 - people in areas of high gaming machine density and high expenditure on gaming hold similar views about gambling to the state-wide average;
 - there is no evidence of greater concern or disapproval of gambling in the areas with very high EGM density such as Maribyrnong or Dandenong;
- no correlation between people's views about the quality of their suburb, and their views about the impact of gaming machines on their suburb (see section 5.2.2):
 - indicating that the presence of electronic gaming is not a primary factor in people's assessment of their suburb;
- half of those surveyed had participated in gambling in the last six months, despite widespread disapproval of gambling (see section 5.2.3);
- no significant differences in gambling patterns between regions, although this may reflect that our sample size was too small to pick up such differences (see section 5.2.3);
- most people play poker machines for social and entertainment reasons (see section 5.2.5);
- the widespread participation in poker machine playing indicates that people are deriving recreational benefit from it (see section 5.2.5):
 - and that to significantly restrict access to poker machines, could reduce these recreational benefits;

- people game locally (see section 5.3.2);
- gaming does not provide a substantial boost to tourism (see section 5.3.2);
- most expenditure on gaming is spent in the gamer's local economy (see section 5.3.2);
- significant investment in clubs and hotels with gaming machines since 1992 (see section 5.3.4):
 - in most cases owners reported that the introduction of gaming machines had been a key factor underpinning the viability of these investments;
- it is difficult to disentangle the effects of the expansion in gaming venues on local businesses from other economic factors affecting businesses (see section 5.3.4):
 - however, inevitably, growth in consumer expenditure on gaming and investments in gaming venues have drawn resources away from other industries, reducing the size of these industries — relative to what they would have been if the gaming industry did not exist;
- in KPMG Consulting's view, the impact of expansion in gaming venues on other businesses should not of itself be necessarily an issue of concern for government policy (see section 5.3.4):
 - change is an integral feature of any dynamic economy and generally governments leave businesses to respond to the changing expenditure patterns of consumers, rather than intervening to protect individual businesses from these effects;
- gambling taxes and returns to TABCORP and Tattersalls represent a leakage from local economies (see section 5.3.4):
 - such leakages and injections are an integral part of all local economies;
- if local governments were to restrict gaming, there is no guarantee that local residents would spend more money on local goods and services (see section 5.3.4):
 - most other goods and services are produced out of the local area; and
 - such a policy may prevent local residents from spending their money in ways that they determine;
- widespread community concern about problem gambling (see section 5.4.1):
 - with 82 per cent of respondents agreeing that gaming is a serious social problem; and
 - 11 per cent of adults saying that they or a member of their family had experienced difficulties with excessive gambling;

- however, on the basis of the responses to our survey, the vast majority of residents (98 per cent) are at no risk of problem gambling (see section 5.4.1);
- the small incidence of problem gambling is fairly uniform across the regions, despite large differences in expenditure on gaming and EGM density (see section 5.4.1):
 - this suggests that the differences in expenditure between the regions may relate more to differences in recreational gambling than problem gambling;
 - alternatively it may be that our survey was too small to pick up differences between regions in the incidence of problem gambling;
 - in this context, it should be noted that the Productivity Commission's gambling survey found that expenditure by problem gamblers made up about one-third of the gambling industries' market.
- the exception is Maribyrnong which has a higher incidence of problem gambling (see section 5.4.1):
 - Maribyrnong also has the highest EGM density of our regions and the highest expenditure on gaming per adult;
 - nevertheless, 97 per cent of Maribyrnong adults on the basis of the responses to our survey are at no risk of problem gambling;
- surprisingly we found no correlation between people's score for an index assessing problem gambling (SOGS) and their personal happiness (see section 5.4.1):
 - however care should be taken in interpreting this, given the small number of problem gamblers in our survey;
- the number of gaming machines and gaming venues appears to influence the level of gaming expenditure (see section 5.4.2.7):
 - however, these results are preliminary, and could also be explained by behaviour consistent with demand driving supply;
 - evidence of differences between regions in the relationship between gaming machines, venues and the level of gaming expenditure, indicates that it is not a simple case of supply driving demand;
- caps on the number of gaming machines per venue, in the context of overall regional or state caps on gaming machine numbers, appear to lead to possibly higher gaming expenditure (see section 5.4.2.7):
 - casting doubt on the effectiveness of venue caps as a tool for curbing gaming expenditure and problem gambling;

- however, there may be other objectives for such policies, such as spreading the wealth created by poker machines across more pubs and clubs;
- our econometrics found no evidence that higher unemployment led to higher gaming expenditure (see section 5.4.2.7):
 - consistent with the view that most gaming is recreational, and the unemployed have less money to spend on recreation, including gaming;
- the utilisation of gaming machines varies substantially over a twenty-four hour period and over the week (see section 5.4.2.7);
 - in KPMG Consulting's view, this indicates that caps (whether they be State, regional or venue) will create congestion at peak times, impacting on recreational gamers, but not reduce the accessibility of machines at most other times. Therefore the impact of caps on accessibility of machines to problem gamblers is uncertain.

2 Introduction to the study

2.1 Terms of reference of the Longitudinal Community Impact Study

The Victorian Casino and Gaming Authority (VCGA) contracted KPMG Consulting to undertake a longitudinal community impact study for specified regions of Victoria. The study was undertaken in the context of previous research into gaming commissioned by the Authority, which consisted of community-oriented, survey-based social studies and empirically-based economic research.

The areas to be studied were chosen by the Authority in conjunction with the Victorian Local Governance Association (VLGA). The nominated regions had enough features in common to warrant a joint investigation, but, in other respects, were sufficiently different to ensure some diversity in the study outcomes. One of the criteria for selection of the regions was the ease with which Australian Bureau of Statistics (ABS) data could be obtained and applied. Hence it was important to define the localities as aggregates of ABS statistical local areas. The following local government areas (LGAs) were selected for examination:

- Greater Dandenong;
- Greater Geelong;
- Maribyrnong;
- Mildura;
- Moreland; and
- Wellington.

Previous research commissioned by the Authority has also investigated the Cities of Greater Geelong, Maribyrnong, and Moreland and parts of the Shire of Wellington.

The Terms of Reference of the Longitudinal Community Impact Study are as set out below:

- 1 The identification of the final composition of six areas which are to be examined as part of the project, in consultation with the Authority.
- 2 An examination of the economic and social conditions experienced within each municipality over the period 1992 to the present. This should include not only general factors, but factors specific to the location or municipality. The description should cover such factors as:
 - changes in the demographic profile of the study area (both individual and household) eg age, gender, income, country of birth;
 - employment (both industry and occupation);
 - the development of the gaming industry in each study area;

- changes in community support services and their usage;
 - changes in the provision of entertainment, shopping, sporting and cultural facilities to communities, and
 - other matters for which statistically valid information is available.
- 3 The identification of social and economic problems within these municipalities and their relationship to the introduction and development of gaming venues and the opening of the casino. This would:
- involve an understanding of the actual situation in each region before and after the establishment of gaming venues and the opening of the casino;
 - identify problems that are common to the municipalities studied and those specific to a municipality. Analysis of the differences between municipalities will be undertaken.
- 4 The identification of the social and economic benefits of the establishment of gaming venues common to all municipalities studied and those specific to a municipality. Analysis of any differences between municipalities will be undertaken.
- 5 An examination of the differential effects of the introduction of gaming machines and the casino on different sections of the population and their lifestyles, including:
- changes in consumer preferences over time;
 - entertainment, sporting, cultural and shopping pursuits;
 - expenditure patterns (individual and household);
 - the socio-economic and demographic characteristics of the patrons of gaming venues;
 - the changes in the availability and demand of services and amenities to the communities; and
 - the changes in the nature and functioning of community organisations, including sporting clubs.
- 6 A comparison of:
- the use of gaming machines at club and hotel venues and gaming activities at the casino (both gaming machines and gaming tables) in order to establish the specific impact of gaming machines in different venues and movements by individuals to and from the municipality to participate in gaming; and
 - the findings of this report with those of the survey series “Community Gambling Patterns” noting any divergences from these findings.

- 7 An essential component of the analysis and interpretation of the results will be the establishment of linkages between the socio-economic profiling of the areas and the qualitative and quantitative data collected.
- 8 Identification of the issues which arise from the findings of the research undertaken.

The findings of the project are to be presented on the Authority's Internet Website.

2.2 Relationship to prior research

The Victorian Casino and Gaming Authority is a statutory body established by the Victorian Government under the *Gaming and Betting Act 1994* which, together with the *Casino Control Act 1991* and the *Gaming Machine Act 1991*, sets out the general framework for regulation of gaming, casino and wagering activities in the State.

The Authority regulates and monitors Victoria's gambling activities and acts to ensure the highest standards of integrity in the industry are achieved in an efficient and effective manner. Apart from its regulatory and monitoring activities, the Authority has statutory responsibility to carry out research into the social impact of gambling in Victoria and to act as a source of advice to the Minister on policy issues with respect to gambling.

The Authority's 1996-97 research program examined various economic, social and community aspects of gaming in Victoria. The following were amongst the reports published:

- *The Impact of the Expansion in Gaming on the Victorian Retail Sector;*
- *The Effect of Gambling on Employment in Victoria;*
- *Social and Economic Effects of Electronic Gaming Machines on Non-Metropolitan Communities – Geelong, Ballarat, Bendigo and the Latrobe Valley municipalities of Baw Baw and Latrobe;*
- *Impact of Gaming Machines on Inner City Municipalities – the municipalities of the City of Maribyrnong, City of Moonee Valley, City of Moreland and the City of Darebin;*
- *Impact of Electronic Gaming Machines on Small Rural Communities – the rural communities of Balmoral/Coleraine, Camperdown and Sale and its surrounding area;*
- *Fifth Community Gambling Patterns Survey Combined with Second Positive and Negative Perceptions of Gambling Survey; and*
- *Summary of Research Findings – 1996-97 Research Programme.*

The Authority's community impact studies, commissioned in 1997, focused on selected inner city municipalities and three regions in rural Victoria. The research sought to identify actual social and economic problems within these communities and their relationship to the introduction and development of EGMs and related activities.

In the rural communities study, empirical research was conducted using published data and this was supplemented with qualitative information obtained from a stakeholder consultation program. Community workshops were held to elicit public opinion on gaming and other forms of entertainment. The outcome of the meetings formed the basis of a telephone survey. Approximately nine hundred interviews were completed and the findings were presented diagrammatically. The results, though based primarily on individual perceptions, were used to form conclusions about the impact of electronic gaming machines. The consultants emphasised the following points:

- a majority of respondents considered that the introduction of EGMs had resulted in an increase in employment;
- a majority of respondents agreed that EGMs had resulted in a boost for clubs and pubs;
- respondents were unsure of the benefits accruing to their communities from the Community Support Fund;
- there was a general perception that profits from gaming flowed out of local communities;
- most respondents indicated that they did not perceive EGMs as providing a boost for tourism in their areas; and
- most respondents believed that EGMs had impacted adversely on the retail sector.

The current *Longitudinal Community Impact Study* builds on the three 1996-97 assignments which evaluated the impact of gaming on specific rural and urban communities. Its objective is to continue the Authority's projects, but based on an intensified effort and refined methodology applied to a wider range of localities. The assignment has concentrated on the impact of gaming on four of the eleven communities studied previously and two new areas. The two new regions (Greater Dandenong and Mildura) were selected on the basis of a VCGA profiling exercise, with input from the Victorian Local Governance Association (VLGA). The current study investigated issues pertaining to both the Melbourne Casino and gaming venues in the regions.

Since the Longitudinal study is to be replicated in 2000 and 2001, KPMG aimed to make the project design replicable and established databases to provide a resource for re-use in future. The project involved conferring with consultants who were undertaking related studies. KPMG interpreted and made use of results derived from other aspects of the 1998-99 Research Program. The other projects commissioned in 1998-99 included the following:

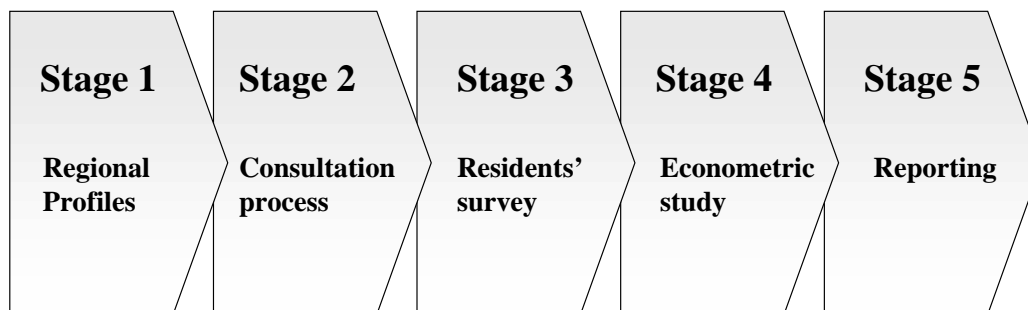
- *Gaming – Comparative History and Analysis, Framework for Evaluation and Summary of 1998-99 Findings*. This was to provide the contextual background against which to examine social and economic impacts;

- *The Evaluation and Further Use of Existing Data Sets.* This data profiling exercise helped provide input into the choice of the six study regions;
- *Community Gambling Patterns and Perceptions 1998 and 1999.* We followed the progress of this project to ensure that the data we collected was consistent and comparable over time; and
- *The Economic Impact of Gaming.* This work was used to provide national, state and sub-state benchmarks of economic indicators.

2.3 Methodology

The Study involved five distinct stages as set out in Figure 2.1. The first stage laid down the contextual background for the remainder of the study by describing social and economic conditions in the regions. The second stage involved consultation with industry and community groups, and other relevant interested parties to ensure that all key stakeholder opinions were taken into consideration. The third stage entailed preparing and conducting a well-designed survey to solicit information from residents about gambling's effects. Data from the survey was used as one of the inputs into the econometric analysis in stage four. The final stage necessitated the preparation of an integrated set of findings, so as to report on the outcomes of stages one to four.

Figure 2.1: Methodology: a phased approach



2.3.1 Stage 1 – Establishing an economic profile of the regions under study

Detailed social and economic data was obtained for each region from the Australian Bureau of Statistics, local government authorities and regional development agencies. Economic profiles of the regions under study were constructed using information from the 1996 Census of Population and Housing, and from the ABS business register, building activity and tourist accommodation collections.

This economic information was complemented by more detailed information about the gaming industries in each region. This information was provided by the Authority and covered such matters such as the number of gaming venues, the number of electronic gaming machines (EGMs) and gaming expenditure in each of the regions. All of this information has been presented by region in the six regional profile volumes.

2.3.2 Stage 2 – Consultation

For each of the 6 regions, KPMG met with representatives from local government to identify stakeholders and to discuss the likely affected parties. An Issues Paper was prepared in response to those discussions. Private interviews were then held with key stakeholders and the responses were documented. Public forums were held at which members of the local communities were invited to express their views. A list of consultations is provided below.

Consultation with:	Number of consultations:						
	Dandenong	Geelong	Maribyrnong	Mildura	Moreland	Wellington	TOTAL
Gaming venues	4	5	4	5	5	5	28
Non-gaming venues	2	2	2	2	2	2	12
Community support agencies	9	9	8	10	8	4	48
Other organisations and local government	6	4	4	4	2	4	24
Public forums	1	1	1	1	1	1	6
TOTAL	22	21	19	22	18	16	118

In each region we interviewed a sample of venues – some of which had gaming machines and some of which did not. Venue managers were given a short presentation on the objectives of the study and the research being undertaken. Meetings were pre-arranged and in most instances, interviewees were briefed on the nature of the interview. Venue operators were asked a series of standardised questions to draw comment on:

- Who is gambling and where are they gambling?
- Manifestations of problem gambling.
- Effects of gambling on communities.
- Effects on businesses.
- Moral implications
- Impacts on organisations and clubs.
- Community participation levels.
- Impact on employment.
- Impact on tourism.
- Perceived social and economic impacts.
- Impact on crime and safety.
- Cultural and recreational implications.

We also interviewed a sample of community agencies and distributed a questionnaire designed to elicit information regarding their service delivery and the impact of gaming on their client group. Respondents found it difficult to fully complete the questionnaire and few have hard data regarding the numbers of clients with gaming problems or issues which have resulted from gaming problems. The feedback, while valuable, was primarily anecdotal.

The public forum held in each region was organised with the assistance of the local councils, who provided a location and assistance with publicity. A list of appropriate contacts was received from the council and invitations were sent to these contacts. The forums were advertised in local community newspapers and council publications and posters were placed in public spaces in the regions. Despite the extensive attempts to encourage attendance, the numbers were generally small, with the most being around 20 in Moreland. The poor response may indicate the need to consider other methods of eliciting public input.

To ensure that the consultation process was balanced, we consulted with industry players, including Crown Casino, TABCORP and Tattersalls (the two gaming operators), Australian Hotels' Association, Licensed Clubs Association of Victoria and the RSL Licensed Sub-Branched Association.

Information gathered from the consultation process helped to define the subject areas to be further investigated through the residents' survey and provided information regarding the perceptions within the regions. The results of the consultations are reported on a region by region basis in the six regional profile volumes.

2.3.3 Stage 3 – Survey of community attitudes

Objectives

A survey of 1,000 residents made up of just under 170 residents in each of the six regions was carried out. Its goal was to:

- identify the problems which, in the opinion of residents, affect the municipalities in question;
- examine changes in consumption and lifestyle patterns over time;
- determine the factors associated with different levels of gaming. These included socio-economic, demographic and lifestyle factors; and
- identify preferences for particular types of gaming (gaming machines, gaming tables) and the differential impact of varying access to these and the casino.

The survey and its results are fully documented in Supporting Paper No. 1.

Survey details

The existing body of material available on gaming, including the previous community impact studies, were reviewed to develop candidate issues for inclusion in the survey.

Material gathered from consultations helped to further define the focus. The survey questionnaire complemented previous surveys so as to ensure continuity with existing databases. However, the KPMG questionnaire also contained additional gaming and lifestyle-related questions. The Authority reviewed the survey templates and recommended changes before giving approval to proceed.

The questionnaire contained over 150 short questions. Sample filters were used to ensure that the pool of individuals interviewed was representative of the population as a whole. The core questions were designed to bring out the following structural characteristics:

- demographics, including income, age and occupational status;
- frequencies of types of gaming by preferred venue;
- issues identified from the analysis of previous research; and
- lifestyle issues now and three years ago. In particular, the survey concentrated on changes in:
 - general well-being and the components of well-being;
 - entertainment, sport, cultural and shopping patterns;
 - demand for services and amenities; and
 - use of community organisations, including sporting clubs.

The sample for the survey was drawn so as to coincide with local government areas for each of the six study regions. These boundaries are also used by the ABS in their regional economic data collections. Therefore the design of our sample has meant that survey results can be cross-referenced against ABS economic data.

Data collection

A thousand telephone interviews (166 or 167 in each area) were conducted using an agreed sample frame. The sample size was sufficient to ensure statistical tests were carried out with a significance of 0.05 at the regional level. Interviews were carried out from a single supervised interview room in Melbourne.

Analysis

Initially, multivariate analysis was used to develop a model of the lifestyle, demographic and socio-economic predictors of gaming. All measures and segments were compared for each municipality to determine factors that were common across all municipalities and those that were different. The tests were tests of means with differences reported at the 0.05 level of significance. A behavioural approach was adopted to determine the extent to which changes in non-gaming consumption were a result of changes in gaming.

The results of the survey have been reported in aggregate across the six regions (in Supporting Paper No. 1) and also by region, in each of the regional profile volumes. The regional results provide information on issues such as the percentage of the population participating in gambling and the percentage 'at risk' of problem gambling on a regional basis, and compare results for individual regions with the average across the six regions.

2.3.4 Stage 4 – Econometric study

An econometric analysis was conducted to examine the factors contributing to the variation in gaming expenditure across regions and over time. Data from KPMG's survey of community attitudes was also used to enhance the economic database, thus contributing to the understanding of gaming issues and economic activity in the regions. KPMG explored whether factors such as the number of EGMs, the number of gaming venues, tourism expenditure, consumer sentiment and social security dependence explained the differences in gaming expenditure between Victorian regions. The econometric study and its results are documented in Supporting Paper No. 2.

2.3.5 Stage 5 - Reporting

Finally, KPMG brought together the various parts of the project, reviewing the results and verifying the output for consistency and accuracy. The implications of the analysis were discussed and policy ramifications explained. Comparisons were made with the results of previous research carried out for the Authority. A draft of the report was presented to the Authority in March 2000, and following useful comments from the Authority's Research Committee and staff, the report was finalised in June.

3 Overview of gambling in Victoria and the regions

3.1 Gambling defined

The Tasmanian Gaming Commission has defined gambling as the (lawful) placement of a wager or bet on the outcome of a future uncertain event.¹ It is treated as an activity that can be clearly divided into two distinct areas — *racing* related and *gaming* related. The term ‘gambling’ is taken to be the total of racing and gaming activities.

The range of gambling service providers includes hotels, registered clubs, lottery agencies, casinos, bookmakers, betting shop operators, TAB and totalisator operators, and newly emerging internet gaming providers. The variety of products supplied to domestic and international customers can be broadly classified as:

- “racing”, comprising totalisator and fixed-odds betting on horse, harness and greyhound racing, and on sporting and other events; and
- “Gaming”, comprising gambling on electronic gaming machines, casino games, lotteries, and other gaming products such as keno, football pools, lucky envelopes, and so on. As such gamers can be seen as a subset of the total population of gamblers.

Totalisator agencies (TABs) operate in every state/territory under individual state/territory government racing acts which established statutory authorities. Recent privatisations have seen the operations of two of these businesses, TAB Ltd. (in New South Wales) and TABCORP Holdings Pty Ltd (in Victoria) transferred to the private sector. These TAB businesses have typically operated totalisators on horse, harness and greyhound racing but are increasingly moving into fixed odds sports betting. Bookmakers are traditionally small, unincorporated operators offering fixed odds betting on racing and, in some instances, on sports and other events.

There are currently 14 casinos operating in Australia, all of which (with the exception of Casino Canberra) offer gambling on both casino games and electronic gaming machines (EGMs). Casinos also earn revenues from keno and commissions from TAB agencies and sports betting operations. Clubs and hotels are the other major venues offering gambling on EGMs. In 1997-98, there were 7000 businesses throughout Australia offering gambling services (principally EGMs). Almost half of these businesses were located in NSW.

Lottery products are generally offered by government lottery suppliers which have the sole right to offer these products within their states. In Victoria, however, the rights to run lotteries lie with the private trust, Tattersalls. Minor lotteries, guessing competitions and bingo are run by charities.

The gaming industry is now facing the prospect of competition from on-line internet casinos and pay TV. Until recently, gambling via these media was limited to established Australian operators utilising the internet as an alternate distribution channel for their existing products,

¹ See Tasmanian Gaming Commission and Centre for Regional Economic Analysis, University of Tasmania, *Australian Gambling Statistics 1972-73 to 1997-98*.

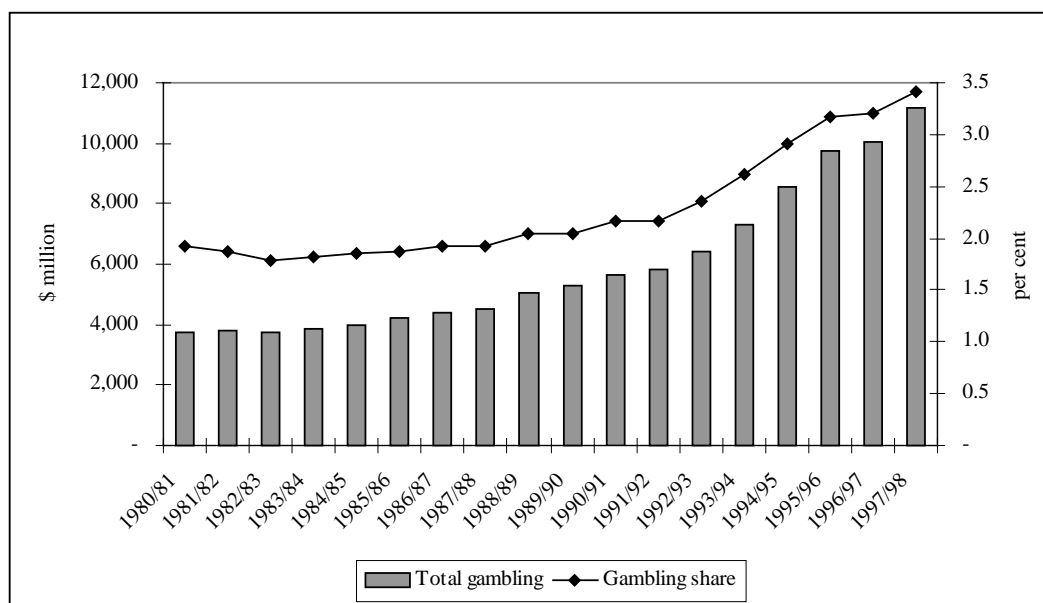
and established international operators based in the Caribbean nations of St. Kitts and Nevis, Dominica and St. Vincent. However, Tasmania has now granted some licences for internet gaming operators and there is some confusion about the legality of an ACT attempt to do the same thing. The Queensland and Northern Territory governments have passed legislation allowing the operation of licensed, on-line casinos in their territories. There are estimated to be around 140 on-line casinos conducting business across the internet.

Illegal gambling through SP bookmakers and illegal casinos also compete with legal gambling product suppliers. The oft-stated objective of legalised gambling is to attenuate the nefarious aspects of illegal gambling activity.

3.2 Gambling's changing composition

Australian expenditure on gambling has surged over the past decade, rising in real terms (1997-98 prices) from \$4.5 billion in 1987-88 to \$11.1 billion in 1997-98. Gambling's share of household expenditure has grown from 1.9 per cent to 3.4 per cent over the same period (Figure 3.1).

Figure 3.1: Real aggregate expenditure on gambling in Australia, 1980-81 to 1997-98 (1997-98 \$m). Gambling's share of real household consumption expenditure.



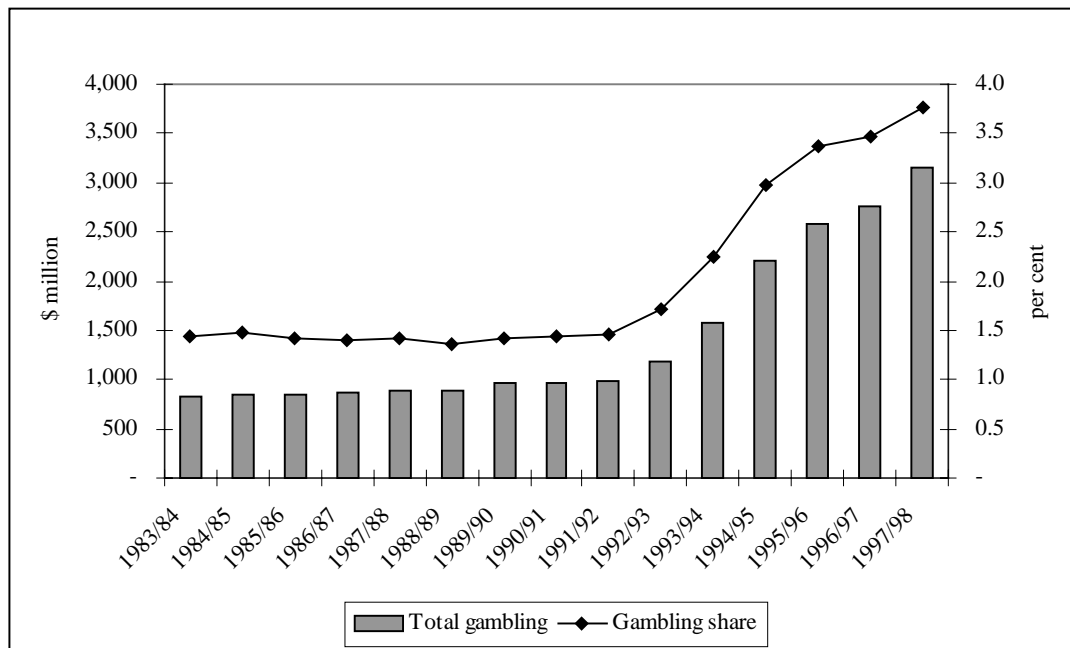
Source: Australian Gambling Statistics, 1972-73 to 1997-98, Tasmanian Gaming Commission. Australian National Accounts, Australian Bureau of Statistics.

The amount spent on gambling – which also represents the gross revenue of gambling venues – is a better measure of the impact of gambling than the total amount wagered. In 1998, nearly 41 per cent of total Australian expenditure on gambling occurred in NSW, with high levels of expenditure also reported in Victoria and Queensland (\$3.2bn and \$1.1bn respectively). On a per capita basis, NSW and Victoria had the highest levels of

expenditure, equivalent to \$963 and \$921 respectively. Note that these figures are unadjusted for tourist visitation. Tasmanian gamblers spent the least on gambling with per capita spending nearly half that of NSW (\$509).

Figure 3.2 summarises the trends in Victorian gambling expenditure since 1983-84. Growth in spending accelerated in 1992-93 but then eased from 1996-97. The share of real household final consumption expenditure devoted to gambling rose to 3.8 per cent, in 1997-98, above the 3.4 per cent national average.

**Figure 3.2: Victorian spending on gambling, 1983-84 to 1997-98 (1997-98 \$m).
Gambling’s share of Victorian real household consumption expenditure.**

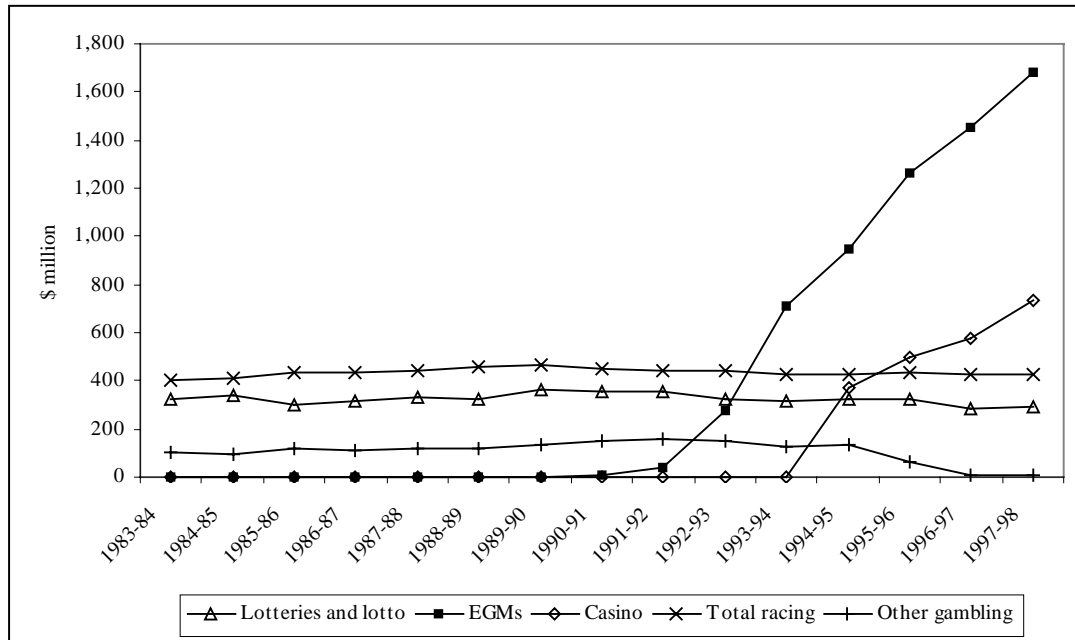


Source: Australian Gambling Statistics, 1972-73 to 1997-98, Tasmanian Gaming Commission. Australian National Accounts, Australian Bureau of Statistics.

The marked increase in Victorian gambling expenditure during the early 1990s was in part attributable to a catch-up phenomenon, as Victorian consumers satisfied their previously unmet demand for gambling. The increase was also attributable to the rising popularity of EGMs and casinos.

Figure 3.3 shows the change in the structure of the Victorian gambling market since 1983-84. In real (inflation-adjusted) terms, expenditure on lotteries, lotto and racing has remained flat over the period while Victorians have reduced their spending on ancillary forms of gaming such as pools, minor gaming, keno and sports betting. In contrast, spending on EGMs and at the casino has soared. The relatively high net player return on gaming machines is likely to be one reason for the high expenditure on EGMs.

Figure 3.3: Victorian gambling expenditure by type of game, 1983-84 to 1997-98, (1997-98 \$m).



Source: Australian Gambling Statistics, 1972-73 to 1997-98, Tasmanian Gaming Commission. Australian National Accounts, Australian Bureau of Statistics.

3.3 Gambling and government

The gambling industry is subject to high levels of scrutiny and regulation by government-appointed regulators. Government oversight of the industry reflects:

- its importance as a source of revenue;
- the need to keep it free of crime;
- the importance of fairness and impartiality in the conduct of gambling; and
- the requirement to monitor and control social impacts of gambling in a time of rapid change.

The degree and type of gambling regulation across Australian jurisdictions differs significantly in terms of:

- provisions regarding the ownership and supply of gaming machines;
- pricing and taxation arrangements; and
- systems of regulatory oversight.

Variations in the regulatory regimes between each of the states reflect attitudinal differences and contrasting stages of development of the industry. New South Wales, the State with the longest history of EGM operation in Australia, has the most fragmented and decentralised approach to regulation. The States that are relative newcomers to gaming, namely Victoria, Queensland and South Australia, have designed regulatory regimes which exploit technology to ensure probity. These states have also imposed restrictions on the maximum allowable number of machines. All of the states maintain some form of control on the number of machines at particular venues.

The Victorian Government decided to separate the ownership of EGMs from the ownership of gaming venues by creating two distinct gaming operators. Tattersalls and TABCORP are the two entities authorised to supply gaming machines to hotels and clubs. In Victoria the regulatory system has facilitated probity checking, with a view to engendering public confidence. Machines have been introduced into venues in an orderly fashion. The regime, as it stands, also enables central monitoring of gaming transactions and revenue flows, and has expedited innovation, such as, for instance, the linking of jackpots. Queensland has awarded eight gaming operator licences and is seeking to replicate aspects of the Victorian system. New South Wales has granted the TAB an exclusive licence to operate a centralised monitoring system. It is scheduled to be commissioned on 1 January 2001.

The benefits of Victoria's EGM duopoly are claimed to be:

- the regulator has extensive knowledge of the gaming operators because both are well established in the business. This makes it easier to ensure there is integrity and rectitude in all transactions;
- the licence renewal process (effectively a form of franchise) keeps the two operators focussed on being successful long-term players; and
- economies of scale are readily attained in the purchase, maintenance and operation of EGMs. For the regulator, there are also network scale economies in supervision and monitoring.

However, possible disadvantages of Victoria's EGM duopoly include:

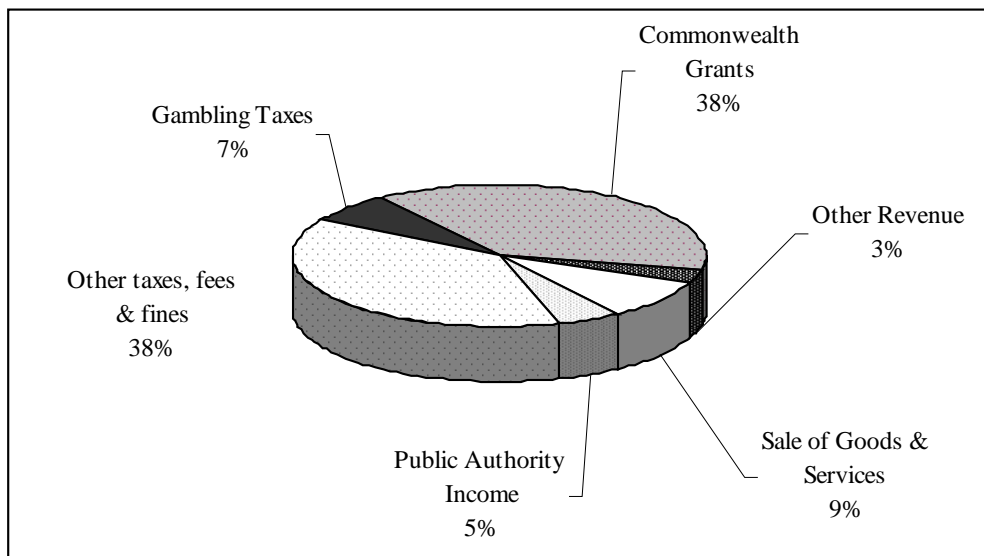
- the two operators have a considerable degree of power vested in them and may be able to extract monopoly rents;
- venue owners have little or no choice over the type of machines placed in their premises and thus have little opportunity to exercise managerial discretion. This is in contrast to the position in NSW where hotels and clubs own the EGMs and thus have full responsibility. In Victoria, there is also no scope for proprietors to adjust machine payout rates in response to competitive forces; and
- most EGM venues invest heavily in facilities, and thus become highly dependent upon this source of revenue. However, the possibility that the gaming operators could remove EGMs and transfer them to other venues contributes to a degree of uncertainty in decision-making, particularly for the smaller clubs.

3.4 Gambling taxation

Gambling is an important source of income for governments, accounting for approximately 10 per cent of own-source revenues across the states (see Figure 3.4). In Victoria, gambling taxes accounted for 7% of total State government revenue, or 11% of State revenue excluding Commonwealth grants (see Figure 3.5).²

High gambling taxation has been justified historically as a trade-off for permitting activities that were previously illegal. It has also been described as voluntary taxation since there is no compulsion on any individual to play and therefore pay.

Figure 3.4: Sources of Victorian Government Revenue, 1998-99



Source: Victorian Treasury Budget Figures

Figure 3.5 gives an Australia-wide breakdown of gambling taxes by type of gambling. While lotteries account for 12 per cent of gambling expenditure, Figure 3.5 indicates that they contribute 30 per cent of total gambling taxes. Overall, gaming machines generate the greatest taxation revenue, contributing 40 per cent of gambling tax revenues nationally. In Victoria, the breakdown of gambling taxes by gambling product is:

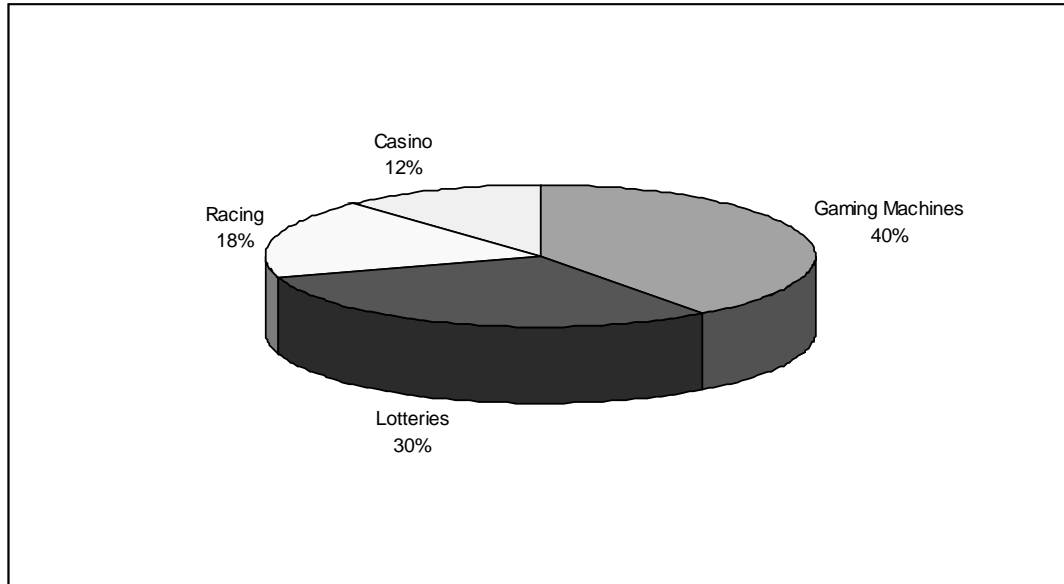
- Gaming machines: 54%;
- Lotteries: 22%;
- Casino: 14%; and

² The 1998-99 Victorian Budget Papers state that gambling taxes in Victoria account for 7% of State government revenue or 11% of State revenue excluding Commonwealth grants. The widely quoted figure of 15% represents gambling taxes as a proportion of total taxes, fees and fines.

- Racing: 10%.³

Effective tax rates vary between different forms of gambling. Payments to governments average 33 per cent of lottery turnover and 83 per cent of lottery expenditure (compared to 2 to 5 per cent of turnover and 20 to 37 per cent of expenditure for other major forms of gambling). Gambling taxation (in particular that on lotteries) distorts the odds facing participants in the various forms of gambling, and the cost of gambling relative to other goods and services. Given that lower income households are generally regarded as high gamblers, the taxes are also regressive, with lower income households carrying a greater burden.

Figure 3.5: Breakdown of Australian governments' revenue from gambling, by gambling products, 1996-97



Source: Commonwealth Grants Commission

Conventional wisdom has it that the demand for gambling products is price inelastic such that expenditure on gambling is not much affected by increases in the cost of gambling. However, this is probably less of a truism than it once was because of the proliferation of alternative, substitutable forms of gambling. There is also more opportunity for supply across jurisdictional boundaries and through the internet.

3.5 Expenditure from the Community Support Fund

When EGMs were introduced in 1992, Section 138 of the *Gaming Machine Control Act 1991* provided for the establishment of a Community Support Fund, with the requirement that 8.33% of daily net balances from hotel venues be paid into the fund.

³ Australian Bureau of Statistics, Catalogue 5506 *Taxation Revenue, Australia 1998*. Figures cited were the preliminary figures for 1997-98.

As at 31 May 1999, the Community Support Fund has allocated funding to projects as set out in the following table.

Table 3.1: Projects announced for funding from the Community Support Fund as at 31 May 1999

Program categories	Amount allocated
Metropolitan projects, including:	\$141,124,809
<ul style="list-style-type: none"> ■ Sports and recreation, including Melbourne Sports Centre and Royal Park hockey and netball facilities redevelopment ■ Arts, including the Immigration Museum and relocation of the Planetarium ■ Tourism, including Melbourne Zoo exhibits, Royal Botanic Gardens Project, Ford Tennis Open prize money and 1998 Port Phillip Bay bid ■ Problem gambling initiatives ■ Families and youth ■ Other projects 	<ul style="list-style-type: none"> \$83,868,593 \$38,215,609 \$16,482,657 \$ 655,450 \$ 446,500 \$ 1,456,000
Regional – localised benefit, including for our study regions:	\$31,054,242
<ul style="list-style-type: none"> ■ Geelong ■ Mildura ■ Wellington 	<ul style="list-style-type: none"> \$ 1,658,500 \$ 636,788 \$ 824,900
Regional – overall benefit, including rural community development, hospital capital improvement, youth affairs, tourism, arts and mobile library programs	\$33,275,000
Statewide	\$282,111,792
<ul style="list-style-type: none"> ■ Families in crisis, including respite care, parenting, child abuse and Foodbank programs ■ Problem gambling programs, including problem gambling services, research and an advertising campaign 	<ul style="list-style-type: none"> \$17,335,717 \$59,727,269
<ul style="list-style-type: none"> ■ Youth affairs, including youth, homelessness and employment programs ■ Turning the Tide drug initiatives ■ Tourism initiatives ■ Arts initiatives ■ Sport and recreation initiatives ■ Other initiatives, including Centenary of Federation, disability services capital funding and water safety initiatives 	<ul style="list-style-type: none"> \$18,481,360 \$99,820,677 \$ 3,466,097 \$16,303,672 \$38,680,000 \$28,297,000
Total	\$487,745,843

In our consultations, very few were able to identify the benefits which had flowed to their region from the Community Support Fund. This is not surprising given that the bulk of funds have been used to finance State-wide initiatives that are difficult to attribute to a particular region.

3.6 Gaming and community attitudes

3.6.1 Overview

As part of this project, a survey was carried out in October 1999 of one thousand residents of the Local Government Areas of Dandenong, Geelong, Maribyrnong, Mildura, Moreland, Wellington (Sale, East Gippsland). The purpose of the study was to determine:

- Gaming behaviour;
- Attitudes towards gaming;
- Consumption behaviour;
- Feelings of personal well-being;
- Feelings towards the region they lived in;
- Factors known to be related to gaming and overall well-being;
- The relationship between those factors;
- Any differences between the regions; and
- Any differences between the overall study results and known results for the rest of Victoria and Australia.

3.6.2 Models

Two models were developed statistically. These models explored the relationships between gambling behaviour, attitudes to gambling, personal well-being and attitudes towards the local region.

The modelling analysis indicated strong (as expected) relationships between personal well-being and social and family life. They also showed that although gambling generally attracts negative perceptions, is considered a serious social problem, and a negative influence on the region, that this set of beliefs is not related to:

- Feelings of personal well-being;

- Personal gaming behaviour;
- Beliefs in the quality of life or economy of the region;
- Demographics (age, gender, income, occupational level or status); or
- Responses to the South Oaks Gambling Screen (SOGS). The SOGS is a standard battery of 23 questions used to measure the prevalence of problem gambling in the population. Ninety-eight per cent of the population in our surveyed regions achieved a score of four or less — people with scores of four or less are considered not at risk. This compares with the findings of state-wide surveys commissioned by the VCGA that 98.5 per cent of the population are not at risk.⁴

The study concludes that while many respondents are ideologically opposed to gambling, this ideology does not influence overall happiness or perceptions of the suburb. This suggests that views about gaming, and the availability of gaming in a particular region, are not important drivers of people's perception of their suburb. Additionally, for most respondents, gambling is part of an entertainment mix – respondents may choose to gamble and this is generally not related to their quality of life.

3.6.3 Treatment of problem gamblers in the analysis

This study was to determine the effects of gaming and gambling in the normal population. While problem gamblers were not excluded from the data, they have not been given particular attention. There were a small number of problem gambler respondents in the survey and this group is too small to provide meaningful results. Consequently, little meaningful information may be garnered about problem gamblers in this study.

3.6.4 Gambling behaviour and attitudes

Of the respondents, 51% had gambled in the six months prior to the study. This group indicated that the primary reason for going to a poker machine venue was to relax, followed by having a meal and socialising. The perceived *quality* of the gambling rated seventh priority. Amongst poker machine players, the most frequently given reason for playing was for social reasons, followed by the belief they may “get lucky”, the thrill of winning, and to make a quick ‘buck’.

⁴ The *Sixth Survey of Community Gambling Patterns and Perceptions* (April 1999) commissioned by the VCGA and conducted by Roy Morgan Research found that 98.5 per cent of the Victorian population are not at risk of problem gambling. The seventh survey in this series, released in April 2000 and conducted in October 1999, found that 99.2 per cent of the Victorian population are not at risk of problem gambling. This compares with the results of the Productivity Commission's National Gambling Survey conducted in 1999 which found that 98.0 per cent of the Victorian population are not at risk, and 97.7 per cent of the Australian population are not at risk.

3.6.5 Comparisons to the average Australian

The KPMG Centre for Consumer Behaviour has been tracking the views of Australians by an ongoing Consumer Monitor Study over the last four years. When compared to the average Australian, the respondents in the study:

- Were very similar on all the major “well-being” questions;
- Consumed more entertainment;
- Bought more consumables;
- Renovated or bought houses more;
- Bought cars more; and
- Played the poker machines as many times per year.

3.6.6 Variations between regions

While there were some variations between the regions, most are descriptive factors such as locality, demographics and leisure combinations with no particular relationship to gambling.

3.7 The determinants of regional gaming expenditure

In Supporting Paper No. 2⁵ we have explored econometrically the relationship between net gaming expenditure in a region and a range of factors, including the size of the region, the availability of gaming in terms of numbers of venues and machines, and individual demand factors. The principal findings are summarised below.

Gaming and EGM numbers and venues

The amount of money wagered on electronic gaming machines (EGMs) is positively affected by the number of hotels and clubs with gaming machines, and the number of EGMs in a region. Specifically:

- a 10 per cent increase in EGMs gives rise to an 8 per cent increase in per capita⁶ gaming expenditure. This result is obtained using time-series cross-sectional data for Victorian regions and is lower than the Productivity Commission’s estimate of a 15 per cent per capita increase, based on Queensland data which used cross-sectional methodology with no time series component;⁷

⁵ This paper was prepared by KPMG and reviewed by Dr John Shannon, Senior Lecturer in Econometrics, RMIT University.

⁶ Defined as the adult population, 18 years and over.

⁷ Productivity Commission, Australia’s Gambling Industries: Draft Report, 1999. The Productivity Commission’s final report also provided estimates for NSW and South Australia.

- whilst a 10 per cent increase in EGM numbers has the same proportionate effect on gaming expenditure in any region of Victoria, the absolute impact varies. There are also (empirically verifiable) structural differences in the relationship between net gaming expenditure, the number of EGMs, and the number of hotels and clubs with gaming machines, from one region to the next. This means that a given number of poker machines and venues will lead to different levels of gaming expenditure per adult from one region to the next. This indicates that there are other factors, not included in our model, that explain differences in gaming expenditure between regions;
- on average, the opening of a new “pokies” club (or the introduction of EGMs to an existing non-gaming venue) holding the number of EGMs in the region constant, causes a \$0.50 increase in quarterly per capita gaming expenditure in the region in question. The introduction of a new hotel gaming venue results in a \$0.56 increase in regional quarterly per capita gaming expenditure. In other words, redistributing a given number of poker machines across an additional venue leads to an increase in per capita gaming expenditure.

Although gaming expenditure is primarily affected by EGM numbers, there is also evidence of a two-way flow, with the number of EGMs being influenced, in turn, by the amount of gaming activity. Tests for exogeneity of the explanatory variable (EGMs) reveal that this two-way flow has been more pronounced for clubs in recent years, whilst from 1995 to 1997 it was more pronounced for hotels.

In general terms, the result that EGM numbers are not independent of gaming expenditure is intuitive. In individual gaming venues, the number of EGMs in commission is responsive to the turnover of existing machines: new machines may be installed if financial performance is satisfactory, or else machines may be removed if profits drop below some benchmark. In the mid-1990s, gaming machine turnover grew more rapidly in hotels than in clubs, resulting in the installation of additional machines. The empirical results suggest that this effect may now have abated. The converse is true in clubs, where the feedback phenomenon appears to have gathered momentum only recently. This may reflect the removal of machines from smaller clubs which cannot satisfy minimum turnover or profits criteria set by gaming operators. It is also likely that clubs have become more mindful of performance standards and are now promoting EGM use more vigorously.

Gaming and tourism

Takings from tourist accommodation explain approximately 16.5 per cent of the variation in regional gaming spending over time. However, the spin-offs to gaming from tourist vacation nights are generally low. It is estimated that for each additional dollar spent on tourist accommodation in Victoria, a further 3 cents is bet on poker machines in the local region. Considering Victorian regions as a whole, gaming does not appear to be a major enticement for tourist visitation. This result might, however, have been different if we had restricted analysis to recognised tourist regions.

Gaming and time to game

Expenditure does not appear to be influenced by the number or proportion of non-working adults in each region. However, unemployment across local government areas has a

negative and statistically significant impact on gaming expenditure, probably reflecting an income effect. The unemployment rate explains about 4.8 per cent of the regional variation in gaming expenditure. In a “typical” Victorian region, a 1 per cent rise in the unemployment rate reduces quarterly net gaming expenditure by an amount equivalent to \$1.23 per adult.

Gaming and socio economic status

Net gaming expenditure in each region is negatively affected by the number of recipients of labour market payments and family payments. The result for labour market payments is consistent with that for the unemployment rate. Two other social security variables, comprising claimant numbers for other social security payments (eg rent assistance) and for pension payments, have a positive impact on gaming expenditure.

In a typical Victorian region, each additional claimant of Centrelink payments has the following effect on gaming expenditure over a three month period:

- pensioners: + \$0.07;
- unemployment benefit recipients: -\$0.10;
- family payment recipients: -\$0.22; and
- other social security payments: +\$0.34.

This means, for example, that total gaming expenditure per quarter in a local government region increases by \$0.07 for every additional pensioner in the region. This indicates that the more pensioners in a region, the greater the amount of gaming expenditure in that region. In contrast, our results indicate that the more unemployment benefit recipients in a region, the lower the amount of gaming expenditure in that region. Therefore, the effect of the number of welfare beneficiaries on regional gaming expenditure depends on the *type* of welfare payment received. If it is aged pensions, then gaming expenditure will be higher, whereas if it is unemployment, then gaming expenditure will be lower, all other things being equal.

The regression model does not stipulate that the increase or decrease in spending is the sole consequence of the recipient’s activities. Rather, it simply finds a statistically significant relationship between regional gaming expenditure and the number of recipients of particular types of welfare, without specifying the reason for this relationship. Therefore it is possible, for instance, that when a claimant receives rent assistance (part of the “other” payments category), he or she may spend more of his own money but may also encourage other gamblers to bet more. In this way, the additional amount wagered may be more than the value of the benefit received. Tests for exogeneity of the social security variables showed that they were all independent of past and current levels of gaming expenditure in the regions.

Gaming and attitudes

Indicators of consumer sentiment were calculated for the six principal study regions using data from KPMG’s household survey. The most general indicator (which measures people’s

perception about the performance of their regional economy) was found to explain roughly 7 per cent of the variation in gaming expenditure between the six regions.

There is little economic theory on the determinants and drivers of gaming expenditure, which makes it harder to model econometrically than other forms of consumption expenditure. Gaming has also been growing rapidly since EGMs were legalised in Victoria in 1992, with no downturn yet in sight. In future, when the industry has matured and cyclical spending patterns have become evident, more information will be available to explore these relationships.

In addition, it is difficult to measure many of the social and individual characteristics affecting gaming, such as differences in individual's entertainment tastes. If these factors drive gaming expenditure but are not included in econometric models, then the model's results will be misleading. For these reasons, our results should be considered as preliminary and treated with caution. Overall we think there is a strong case for further empirical work exploring the relationship between gaming supply and gaming expenditure.

4 Profile of six regions

A demographic, social, economic, and gaming profile of each of the six regions is detailed in the regional profile volumes. Each of these profiles is summarised in the following sections, and comparisons between regions are made in chapter 5.

4.1 Dandenong

The City of Greater Dandenong is a major outer urban centre, 45 kms to the south east of the City of Melbourne, which has been experiencing a slowing in population growth that is projected to continue in the future. The City has similar demographic characteristics to the rest of metropolitan Melbourne, except for its greater ethnic diversity. Compared to the average for metropolitan Melbourne, the region does, however, have a higher proportion of couple and single parent families with children, lower educational and income levels, higher receipt of social security benefits, lower levels of home ownership and car ownership and higher rates of crime.

The economy of Greater Dandenong is characterised by its strong manufacturing base and its above average unemployment. It is a region that has undergone economic decline in recent years. About half the people of Dandenong believe their economy is doing well and 60% believe the suburb is good to live in. However, more than half have concerns about safety and crime. Only half or less of the population believe that the region is better than three years ago. In general, Dandenong respondents are less positive about their region and less satisfied than the average of our six regions.

The City of Greater Dandenong has a comparatively high level of EGMs per head, with a high concentration of EGMs per gaming venue. There is a particular concentration in clubs rather than hotels. Over recent years, the numbers of machines and venues has been static. Gaming expenditure has grown in Dandenong from \$13.63M in 1992/93 to \$85.59M in 1998/99. Average annual gaming expenditure per adult in Dandenong is 54% higher than the State average.

According to our survey, just over half of Dandenong respondents gambled in the last six months. Playing poker machines is the most popular form of gambling, with the most popular venue being a pub or club. While Dandenong gamers patronise the Crown Casino less frequently than other gaming venues, on average more money is spent per daily visit at the Casino than elsewhere. Gamers in Dandenong are more likely than those in other regions to believe they may have a lucky win, and many play for social reasons and for the thrill of winning.

Our survey findings indicate that Dandenong gamers go to gaming venues for a broad social and entertainment experience, of which gaming is one component. Dandenong gamers spend less than half the time in gaming venues playing pokies with the majority of gamers choosing venues on the basis of entertainment value, the social ambience and good meals and restaurants. More gamers in the Dandenong regions frequent venues because they are easy to get to than in the other regions, with respondents travelling on average 2km to get to a venue (0.5km less than in the other regions). The majority of Dandenong gamers arrive at gaming venues between 4pm and 8pm.

Gaming appears to be undertaken by a broad range of people, although anecdotal evidence suggests that older women, people from lower socio-economic groups and people of Vietnamese origin are high gamers.

Problem gambling is regarded as a major issue by community agencies, and venue operators in Dandenong have a high awareness of this problem. About 2.4% of residents in Dandenong are at risk of problem gambling compared to the State average of 1.5%. There was no statistically significant difference between the percentage of 'at risk' residents in Dandenong compared to our other five study regions. Eleven per cent of all Dandenong residents said that they, or a member of their family, had at some time experienced difficulties with excessive gambling, which is in line with the results for our other study regions. More than one in five of those who gamble in Dandenong indicate personal gambling problems, such as money arguments centred on gambling and guilt as a result of their gambling, in the last six months. In Dandenong, very little gambling activity is financed by credit.

During our consultations, the following costs and benefits of gaming were identified.

Benefits

- Venues with gaming machines are more profitable and have been able to finance expansion and upgrading of facilities. For clubs, there has also been the potential to cross-subsidise other activities for club members, whilst generating trading surpluses that can be donated to welfare groups.
- Successful venues provide employment, training and new career paths for young people.
- In some areas, the introduction of EGMs has brought with it significant improvements in the appearance of an area and has injected life back into the streets. However, in other areas, there has been a decline in the retail environment and street amenity, reflecting a shift in the location of economic activity.
- For many people, gaming has become a form of entertainment and a means to get away from the demands of family life and to relax. For others it is an avenue to escape from other social problems, such as loneliness. The resulting change in the overall mix of social and recreational alternatives available for people is seen by some to be of benefit.
- Community support agencies have recognised some benefits associated with the introduction of EGMs, including the ability for venues to provide donations and sponsorship to community groups, clubs and charities and an increase in the number of community support agencies and other health and welfare services funded through gaming taxes.

Costs

- There are substantial costs to some businesses as a result of the introduction of EGMs. Non-EGM venues and sporting clubs become less viable and the control over EGM placements by the two EGM operators can impact on the viability of gaming venues.

- There is a concern that money generated from machine gaming is going outside the region, rather than staying in the local community.
- Eighty per cent of Dandenong residents believe that gaming is a serious social problem that does more harm than good for the community and that gaming problems have become worse in the past three years.
- Community support agencies consider that family breakdowns and relationship problems are major costs of problem gambling. Additionally, problem gamblers tend to be diverting funds away from items such as food, rent and school expenses.

4.2 Geelong

The City of Greater Geelong is Victoria's second largest population centre. It has many of the features of a metropolis, but is situated within a rural environment.

Geelong has experienced relatively strong population growth in recent years, which is expected to continue in the future. The City has age, marital status, household structure and employment tenure profiles that reflect its unique position as a major city within a rural setting (essentially between the profiles of Regional Victoria and Victoria as a whole). Compared to Victoria as a whole, Geelong's residents are less ethnically diverse, less mobile, less well educated and have lower income levels and are high recipients of social security payments. Crime rates are relatively low and decreasing compared with Victoria as a whole.

Geelong is a significant trading port, especially for bulk grains and petrochemicals. Manufacturing is the mainstay of the region's economy, accounting for 20.4% of all employment. Compared to Victoria as a whole, Geelong's workforce has relatively low levels of labour force participation, high unemployment, high employment in manufacturing and retail industries and has more tradespersons and elementary sales workers. While average house prices are above the average of regional Victoria, they have been fairly stable in recent years. Tourism revenue, is an important feature of the economy and has been relatively stable. Almost 60% of Geelong respondents believe their local economy is doing well and 80% believe it is a good place to live. Around 57% believe it is better place to live now than three years ago. In general, Geelong respondents are more satisfied with their region and more positive than the average of other regions.

Geelong has a high level of Electronic Gaming Machines (EGMs) and gaming expenditure per head of population. Over recent years, the number of venues has been static, but the number of EGMs has continued to grow. Gaming expenditure in Geelong has grown from \$11.09M in 1992/1993 to \$84.92M in 1998/1999. Average annual gaming expenditure per adult in Geelong is 6% higher than the State average.

According to our survey, just over half of Geelong respondents' gamble. Playing poker machines at a pub or club is the most popular form of gambling. While Geelong gamblers patronise the Crown Casino less frequently than other gaming venues, on average more money is spent per daily visit there than at local gaming venues. Gamers in Geelong play

pokies mainly for social reasons and because of the prospect of a lucky win. Gaming appears to be especially prevalent amongst older people, and women during the day.

Our survey findings indicate that playing pokies is a part of a broader social and entertainment experience for Geelong gamers. Geelong gamers spend around a third of the time in gaming venues playing EGMs with the majority of gamers choosing venues on the basis of proximity and convenience, good meals and restaurants and perceived entertainment value. Gamers in Geelong travel an average of 2.5km to get to a venue. The majority of Geelong gamers arrive at gaming venues between 4pm and 8pm.

The community regards problem gambling as a major issue in Geelong. About 3% of residents in Geelong are at risk of problem gambling and 5% of all Geelong gamblers said that they, or a member of their family, had at some time experienced difficulties with excessive gambling. Around 15% of Geelong's gamblers have had negative gambling experiences, such as money arguments over gambling.

During the course of our consultations, the following costs and benefits were identified with gaming in recent years.

Benefits

- The benefits of gaming for Geelong are mostly felt by venues with EGMs and individuals who have enjoyed greater employment opportunities as a result of the liberalisation of gaming. The venues now offer improved service facilities and employment and training opportunities for some employees.
- Gaming venues provide older people with a safe, accessible environment, which increases their leisure options.
- Gaming venues provide donations to sporting clubs, although the benefits of this must be weighed against their inability to compete with gaming venues.

Costs

Some venues believe that one of the costs of the introduction of EGMs has been the increasingly negative perception in the community towards gambling and the stigma associated with machine gaming as a form of recreational activity. That said, there has been a rapid expansion of machines and some people are critical that this is reducing, not increasing, leisure options.

Community support agencies have identified costs for individuals of the introduction of EGMs to include:

- financial problems;
- interpersonal and family problems; and
- heightened emotional problems, self-loathing and a loss of control.

4.3 Maribyrnong

The City of Maribyrnong is an established residential and commercial centre approximately 7 kilometres to the west of the Melbourne CBD. Recently, parts of the City have undergone a considerable change in land use and residential profile. The inner west and areas close to the Maribyrnong River are being redeveloped as high density living and are attracting young skilled and professional residents.

The resident population is forecast to grow only marginally over the coming ten years, despite the forecast housing growth for the area. There is an increasing concentration of young adults and aged residents within the City. Residents of Maribyrnong are more likely to be overseas born (with a high proportion of Vietnamese residents) than the Victorian average and there is a comparatively high and increasing proportion of single person and sole parent households. Maribyrnong residents are on average relatively mobile, less well educated than the Victorian average and their income is lower, with high proportions of residents in receipt of social security payments and living in privately rented or government housing. Maribyrnong residents typically have fewer cars and are more likely to use public transport. The City has a very high crime rate compared to the rest of Victoria.

Maribyrnong has a comparatively low rate of participation in the workforce and the unemployment rate is substantially above the State average. Employment has declined in Maribyrnong, with a marked decline in the proportion of residents employed in manufacturing from 1991 to 1996. The resident population is principally employed in unskilled and labour-related roles. However the proportion of residents engaged in professional and managerial roles increased from 1991 to 1996, possibly reflecting gentrification of the suburb, which is confirmed by increasing house prices in the region.

Just over half of the people in Maribyrnong believe their local economy is doing well, and almost 70% believe the suburb is good to live in. Crime and safety are important concerns, more so than in the other regions. Around half the population believes things are better than in the past.

The City of Maribyrnong has a very high concentration of Electronic Gaming Machines (EGMs) and gaming venues. Expenditure on gaming in the City of Maribyrnong has increased from \$12.89M in 1992/1993 to \$53.25M in 1998/1999. Average annual gaming expenditure per adult in Maribyrnong is 92% higher than the State average and the highest of the six regions in our study.

According to our survey, half of Maribyrnong residents gambled in the last 6 months. Playing poker machines is the most popular form of gambling, with the most popular venues being pubs and clubs. Maribyrnong gamblers patronise Crown Casino to play table games more frequently than residents in the other regions surveyed. Maribyrnong gamers tend to frequent local venues on average travelling 1.9km to a venue, or access Crown Casino via the free courtesy bus.

Our survey indicates that Maribyrnong gamers spend less than half their time in gaming venues playing pokies, with the majority of gamblers choosing venues on the basis of proximity, good meals and restaurants the entertainment offered and because it is a good place to relax. Compared to respondents in the other study regions, more gamers in

Maribyrnong frequent venues because they have 'lots of pokies'. The majority of Maribyrnong gamblers arrive at gaming venues between 4pm and 8pm. Anecdotal evidence suggests there is a high participation in gaming among older people during the day and younger people at night.

Problem gambling is regarded as a serious issue in Maribyrnong. About 3% of gamblers in Maribyrnong are at risk of problem gambling, and about 17.5% of all Maribyrnong residents said that they, or a member of their family, had at some time experienced difficulties with excessive gambling. These two results were significantly higher than the State average, and the average across the six regions in our study. Almost 35% of Maribyrnong gamblers gambled more than they intended to and almost 30% have had money arguments centred on gambling. This is consistent with the high incidence of gaming in an area of low income and high unemployment. While venues claim to take into account self exclusion, they noted difficulties in identification of problem gamblers. Community agencies noted the detrimental effect of gambling on family life and finances.

During the course of our consultations, the following costs and benefits of gaming were identified.

Benefits

Gaming venues argued that there are identifiable benefits associated with the operation of EGMs:

- The positive effects of gaming machines were noted in all venues with increased profits enabling them to upgrade their facilities and offer more services to members and consumers.
- Most venues were also positive about the effect of the EGMs on social opportunities for gamers looking for an "entertainment package" and for members of the general community, who would have lost the services offered by the clubs, had it not been for the boost to viability provided by EGMs. Club venues point to the fact that they offer a safe, comfortable environment for members and guests. The venues often offer free access to sporting and recreational facilities. Additionally, other social sub-clubs (basketball, golf, football, bowls and ethnic-based clubs) have been developed, to operate within the clubs.
- It was noted that there have been improved social opportunities for women and elderly people in particular, through the provision of a safe licensed venue. The safety of these venues tends to attract older people, particularly women, who feel more comfortable due to the presence of security and the non-threatening nature of gaming (as opposed to a hotel where drinking is the primary form of entertainment or means of socialisation). Social interaction with staff can also be important to older people with limited social opportunities.
- Many venues (particularly clubs) emphasised the support of a number of local clubs, which would not have been possible without EGMs and the additional revenue they provide. This not only included clubs internal to the larger club (sub-clubs) but also

external organisations such as the local football or cricket clubs. In part this support might be seen as promotional in that it could encourage people to use the venue more. One club advised that it donates 10% of pre-tax profits into a community support fund from which donations are made to local charities and groups.

Costs

While some community organisations recognise a positive role for gaming venues in terms of social opportunities, most see these as being outweighed by the consequences of problem gambling. Problem gambling is considered to be the major cost of gaming in the community. Few community organisations recognised benefits to the area from contributions from the Community Support Fund.

The negative economic effects observed in consultations related to the diversion of discretionary spending from other local businesses to EGM venues. In practice, identifying the effect of EGM venues on local business is virtually impossible. A range of factors will have influenced business activity in Maribyrnong, including general economic conditions, other social and economic problems (e.g. drugs, unemployment) and consumer preferences in the area (e.g. caused by an ageing population).

4.4 Mildura

Mildura is a city in northwestern Victoria, which has enjoyed strong economic growth in recent years. In contrast to many rural areas in Victoria, the population of Mildura has been increasing at a faster rate than Victoria as a whole, and is projected to continue to do so. As with other rural regions, it has a higher proportion of young and aged people, and a higher proportion of married couples, although this is declining, as is the proportion of households consisting of couples with children. The residents of Mildura are more likely to be Australian born and to be Christians, than the average of the other regions. They are generally more mobile than Victorians as a whole but are less well educated and have lower incomes, and in recent years there has been an increase in numbers of social security recipients. Mildura has a lower crime rate than Victoria as a whole, but this has been increasing in recent years.

Mildura would appear to have a relatively buoyant local economy, particularly in comparison to other Victorian rural regions. However, in common with other rural regions, its labour force participation rate is slightly below that of Victoria as a whole and its unemployment rate is above the State average. Its workforce is concentrated in agriculture, forestry and fishing and in retail trade. Reflecting these industry concentrations, there is a relatively high proportion of the workforce who work as managers and administrators (including farm owner-operators) and as labourers. House prices and sales are relatively high and tourism continues to provide considerable value to the local economy.

More than 75% of Mildura respondents believe their region is good to live in, and over 60% believe the economy is doing well. Crime and safety are lesser issues than in the average of the six regions. About 55% believe that things are better than three years ago. Mildura

respondents are happier and more positive about their region than respondents in other study regions.

Mildura has a comparatively low number of EGMs per head and a low concentration of EGMs per gaming venue. Over recent years, the number of venues has been static and the number of machines has been slowly increasing. However, Mildura does face considerable competition for gambling revenue from NSW venues. Gaming expenditure has grown in Mildura from \$3.53M in 1992/1993 to \$16.99M in 1998/1999. However, annual gaming expenditure per adult in Mildura is 94% higher than the average of non-metropolitan LGAs but is 11% lower than the State average.

In our survey, 56% of respondents in Mildura gambled in the last 6 months. Playing poker machines is the most popular form of gambling, with the most popular venue being an RSL club. While gamblers in Mildura patronise the Crown Casino less frequently than local gambling venues, on average they spend more money there per daily visit. Mildura gamblers spend approximately a third of their time in gaming venues playing pokies, with the majority of gamblers choosing venues on the basis of the restaurant, to relax and because it is a good place to socialise. Gamblers in Mildura travel 3.2km on average to get to a venue (0.9km more than in the other regions). The majority of gamblers arrive at gaming venues between 4pm and 8pm. Anecdotal evidence suggests there is high participation in gaming among the elderly, Aborigines, unemployed and welfare recipients, farmers and labourers and low income workers from ethnic backgrounds.

About 1% of residents in Mildura are at risk of problem gambling, and 8% of all Mildura gamblers said that they, or a member of their family, had at some time experienced difficulties with excessive gambling. In our survey, Mildura respondents had fewer negative experiences with gaming than in the other regions, although the number of problem gamblers continues to grow, with increasing numbers of clients at problem gambling services, and substantial community concern regarding problem gambling in the Aboriginal community and among farm families.

During the course of our consultations, the following costs and benefits were identified with gaming in recent years.

Benefits

Venue operators were generally of the view that the introduction of EGMs had a number of significant benefits for the Mildura community, including:

- Significant economic flow-ons through increased levels of expenditure on food, beverage and entertainment at licensed venues;
- Increased employment in licensed venues; and
- Increased financial support for community, sporting and charitable associations through the distribution of profits from EGMs.

A number of attendees at public meetings indicated that the community had benefited through the availability of improved entertainment and recreational facilities and services. Further, with the introduction of EGMs, the flow of money across the border to NSW licensed venues had reduced significantly, so that gambling expenditure by Mildura residents now stayed in the local community.

Costs

Venue operators generally did not highlight many perceived costs associated with the introduction of EGMs, however a few did recognise that there had been an increase in social problems associated with problem gamblers. Also, the introduction of EGMs in Mildura had had a significant negative impact on the trading performance of NSW border clubs due to increased competition.

Some local tourism operators said that since the introduction of EGMs in Victoria, there had been a significant decline in the number of tourists coming to Mildura to play the poker machines in NSW licensed clubs over the border. However, official statistics indicate that tourism accommodation takings in Mildura have continued to grow from the mid-1990's (although the number of establishments has declined).

Community service organisations highlighted a range of perceived costs associated with the introduction of EGMs including:

- increased incidence of problem gambling amongst at risk groups such as the elderly, welfare recipients, Aborigines, and the unemployed;
- increased incidence of social problems within family units such as domestic violence, homelessness, food shortages and a lack of financial resources to meet the normal costs of living;
- increased demand for community support services, which has meant that financial resources are stretched to the limit;
- a reduction in social interaction throughout the broader Mildura community; and
- increased crime due to people being desperate to fund their gambling habits. Official data indicates that there has been an increase in crime, but it is unclear if this is related to gaming or if it is an on-going feature of the region.

4.5 Moreland

The City of Moreland is on the edge of the City of Melbourne, with characteristics of both the established inner city and the developing outer suburbs.

Compared to metropolitan Melbourne and Victoria as a whole, Moreland has an older population, which is more ethnically diverse, less mobile and less likely to own or to be buying a home. The population is relatively poorly educated and has low-income levels and

high receipt of social security benefits. The residents of Moreland have lower rates of car ownership and higher rates of usage of public transport than the State average. Moreland has a lower incidence of crime than the State average.

Moreland is a city with a declining manufacturing base, a comparatively low labour force participation rate and a high rate of unemployment. Reflecting the city's gentrification, the real estate market has been strong.

The residents of Moreland are generally positive about their suburb, both now and compared to three years ago. Three quarters of Moreland respondents believe their suburb is good to live in and over half believe it is better than three years ago. More than six in ten feel a sense of community and feel safe, although just as many believe there is crime within the suburb.

The concentration of EGMs and gaming venues in the City of Moreland is below the State average, with some decline in the two years to June 1999. Moreland has the lowest number of EGMs per thousand adults of our 6 study regions. However, a new large venue recently opened in Moreland may change this result. We note that many respondents perceive Moreland as having a high concentration of venues and machines – whilst this is true for the suburbs of Brunswick and Coburg, it is not true for the whole region.

Based on VCGA figures, Moreland's expenditure on gaming increased from \$8.28M in 1993/1994 to \$55.44M in 1998/1999. Annual gaming expenditure in Moreland per adult was 9% lower than the State average in 1998-99.

According to our survey, half of Moreland respondents gambled in the last 6 months. Playing poker machines is the most popular form of gambling, with the most popular venue being a pub or club. Our survey indicates that gamers in Moreland participate in gaming for social reasons, and tend to frequent local venues or, more so than other regions, the Crown Casino (which is relatively close and accessible by public transport). Although the demographics of gamers vary between venues, anecdotal evidence suggests that most have an older clientele, especially women, during the day and men at night. Reflecting the high ethnicity in the suburb, high levels of gaming amongst ethnic groups were reported.

Our survey indicates that gaming is part of a broader social/recreational package. This is reflected in the fact that most Moreland gamblers spend less than a third of the time in gaming venues playing pokies, with the majority of gamers choosing venues on the basis of proximity and convenience and to relax. Gamers in Moreland travel on average 2.4km to get to a gaming venue. The most popular time for arriving at gaming venues is between 8pm and midnight.

Eight in ten respondents regard gambling as a serious social problem in Moreland. About 1.8% of residents in Moreland are at risk of problem gambling and 13% of Moreland residents said that they, or a member of their family, had at some time experienced difficulties with excessive gambling. In the last six months almost 20% of gamblers had gambled more than they intended to and 17% had money arguments centred on gambling. However, venues in Moreland did not generally accept that there was a large amount of problem gambling in Moreland, although they noted that the brochures and cards provided to their patrons regarding problem gambling were well utilised. Community agencies and

gamers at our public meetings identified a high level of problem gambling in Moreland, with significant detrimental effects on individuals family life and finances. They also noted that gamblers are now facing multiple problems leading to crime and fraud.

During the course of our consultations, the following costs and benefits were identified with gaming in recent years.

Benefits

Participants at the public meeting referred to the cheaper meals and the improved entertainment and recreational facilities as being a key benefit of the introduction of gaming. In addition, a number of participants cited the benefit of increased funding of community sporting and charitable organisations due to the distribution of club gaming profits.

Community service organisations could see few benefits associated with the introduction of gaming apart from the improved availability of entertainment and recreational facilities and services for the community.

Venue operators highlighted the following benefits as a direct result of gaming:

- urban renewal has gained impetus since gaming commenced; with a move to more residential developments attracting younger couples and families to the region;
- the venues themselves are modern and more aesthetically appealing than before;
- gaming is leading to benefits for the whole community, including increased employment and improved services and facilities for members and better entertainment all round. Any problem gamblers are relatively small in number;
- increased taxes to government, benefits the community in the longer term.

Costs

Community service organisations and some sections of the community not associated with gaming venues have serious concerns about the negative impact of gaming on the Moreland community. While there may be a small number of problem gamblers, these groups consider that the costs of gambling are huge and reverberate across many affected individuals and businesses. Family support services indicated that there is an increasing trend in recipients of social security benefits; requests for emergency and material aid; family breakdowns; and social dysfunction (which is not conducive to family or community). There are also reported implications for crime in the community, although it is widely believed that this is mostly unreported. The community generally feels powerless to overcome gambling problems.

Whilst most venue operators indicated that they had heard of rising unemployment and crime rates, they challenged the view that these were a direct result of gambling. A number of venue operators did express some concern about the increased number of venues, which threaten the viability of other venues as well as providing relatively unrestricted access to gaming to the Moreland population. A few venue operators also expressed concern about personal safety of clients late at night.

4.6 Wellington

The major population centres of the Wellington Shire are the towns of Sale and Maffra. The Shire's population is relatively young, but has been declining in recent years, although it is projected to grow slightly in the future. A proportion leave the region in early adulthood for employment and study elsewhere. Residents are more likely to be Australian born than the Victorian average, and there is a relatively high (but declining) proportion of families comprising couples with children.

The Shire of Wellington is an agriculturally based economy. There is slightly lower participation in the workforce, and higher unemployment in Wellington than the State average. Wellington residents are also generally less well educated than the Victorian average. The income profile of residents is similar to that for regional Victoria, although less prosperous than metropolitan areas. The majority of people are employed in agriculture, forestry and fishing, with manufacturing, retail trade and government administration and defence representing the next largest employment sectors. Despite the presence of the large oil and gas facilities, the East Sale RAAF Base and Fulham Correctional Centre, some 97% of businesses in the Shire of Wellington are small.

Only about 45% of people in Wellington believe their local economy is doing well, but 80% believe the region is good to live in. Crime and safety are less of a concern for Wellington respondents than the average in other regions. About 49% of residents believe that Wellington is better to live in now than three years ago, and 39% believe the local economy is better now than three years ago. In general, Wellington respondents are happier with living in their region but are less optimistic than other regions about their local economy and its current state.

The Shire of Wellington has a comparatively high level of EGMs per head, but a low concentration of EGMs per gaming venue, being more concentrated in clubs than in hotels. Over recent years, the numbers of machines and venues has been static.

Wellington's expenditure on gaming has increased from \$0.135M in 1992/93 to \$15.448M in 1998/99. Average annual gaming expenditure per adult in Wellington is 9% lower than the State average.

According to our survey, 45% of the residents of Wellington gambled in the last 6 months. Playing poker machines is the most popular form of gambling, with the most popular venues being pubs or clubs. While Wellington gamblers patronise Crown Casino less frequently than in other regions, on average they spend more money per visit there than at local gaming venues. Wellington gamblers spend approximately a third of their time in gaming venues playing pokies with the majority of gamblers choosing venues on the basis of the meals, proximity and to relax. Wellington gamblers travel 3km on average to get to a venue, with the majority of gamblers arriving at venues between 4pm and 8pm. In our consultations, we were told gamers generally like to game locally and are more likely to be older people and to be of lower income levels.

About 0.6% of gamblers in Wellington are at risk of problem gambling significantly lower than the State average, and 7.8% of Wellington residents said that they, or a member of their family, had at some time experienced difficulties with excessive gambling. There was

concern regarding problem gambling from both venues and community agencies. While requests for material aid have grown, high unemployment, the number of recent retrenchments from major employers and the influx of high-need single parent and low-income families seeking cheap accommodation in the region have also been factors contributing to this increase.

Our consultations identified a number of costs and benefits of gaming.

Benefits

The benefits of gaming included:

- many of the gaming venues in Wellington have undertaken substantial facility improvements since the introduction of EGMs, with a large amount of money having been spent on renovations and other building improvements. Some gaming venues also report that surrounding businesses have benefited from a general increase in trade as a result of gaming;
- gaming venues employ a large number of staff and particularly provide opportunities for young people and part time and casual employment within the local community. The number of staff employed at the gaming venues visited in Wellington was 60 people;
- social benefits of gaming include increased opportunities for socialising, particularly for older women, in a safe environment;
- the sporting clubs within the region, which have introduced electronic gaming machines, report better facilities available for members and a general view that profits from EGMs is distributed back into the community.

Costs

The costs of gaming included:

- negative impacts on the trade of retail outlets, such as supermarkets, especially in the smaller towns; and
- the social and financial problems that are caused by gambling, with increased requests for material aid and counselling services.

5 Comparing the community impact of gaming across six regions

5.1 Policy context of this longitudinal community impact study

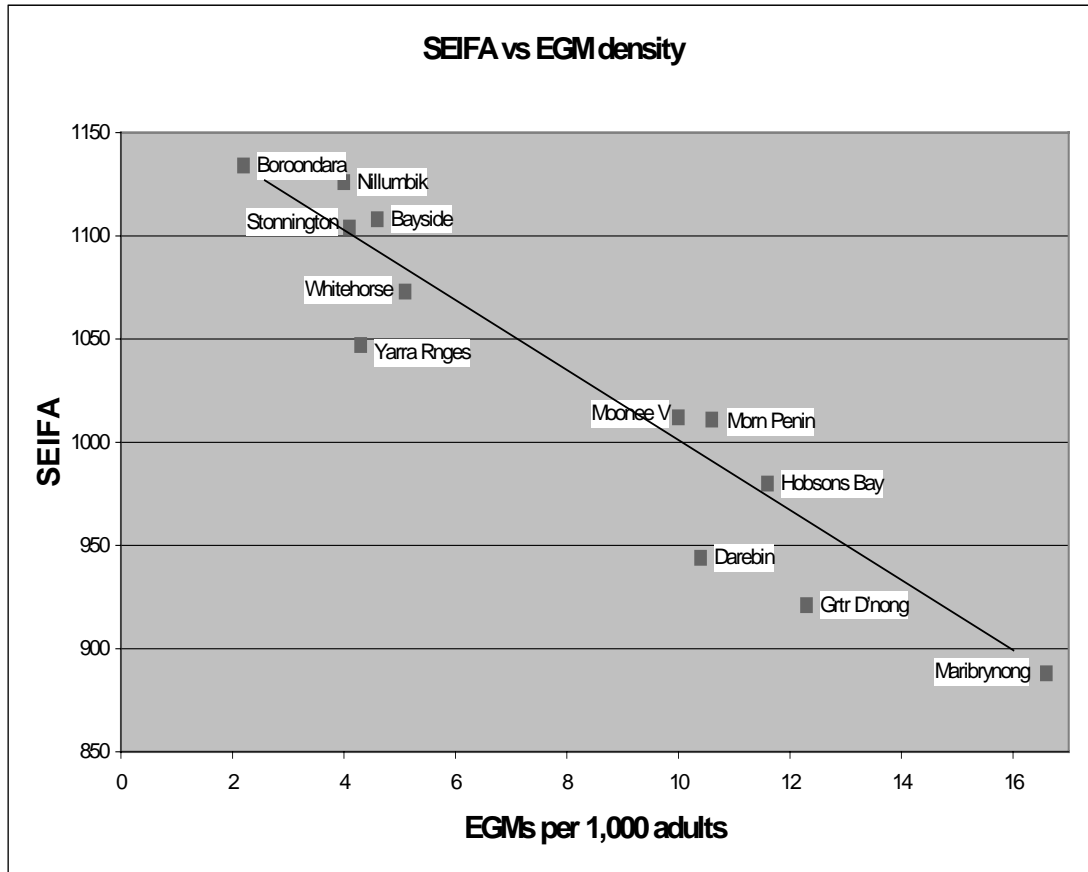
This first phase of the longitudinal community impact study has coincided with a period of reassessment of Victoria's approach to gaming. It is also occurring at a time of concern about the social and economic effects of gaming at the local level.

This concern was reflected in the establishment of the Local Government Working Group on Gambling, which was formed and convened by the Victorian Local Governance Association in response to the concern of some local governments at the impact of a proliferation of gaming venues and machines within their communities. This concern was initially focussed on local electronic gaming machine venues, particularly in comparatively disadvantaged areas of suburban Melbourne, and Victoria generally (Victorian Local Governance Association 1999, p. 5).

Concern about the regional impact of gaming is also reflected in some local councils' decisions to establish responsible gambling policies. For example, the City of Greater Dandenong has issued a Strategy Plan for Responsible Gaming and Gambling Update Kit, the Maribyrnong City Council has released a discussion paper on poker machine gambling in Maribyrnong, and the City of Moreland has issued a Responsible Gambling Strategy. These policies cover issues such as:

- how Councils will use their planning powers in considering development applications by venues providing gambling;
- policies on gambling on Council property; and
- Council support for problem gambling services.

A view expressed by council representatives in consultations for this project and in submissions to the Productivity Commission's inquiry into Australia's Gambling Industries is that the gambling industry is targeting disadvantaged areas. This has been prompted in part by the uneven distribution of EGMs in local government areas throughout Victoria. Research conducted by the Maribyrnong City Council indicates that EGM density is greatest in areas of lower socio-economic advantage (see Figure 5.1).

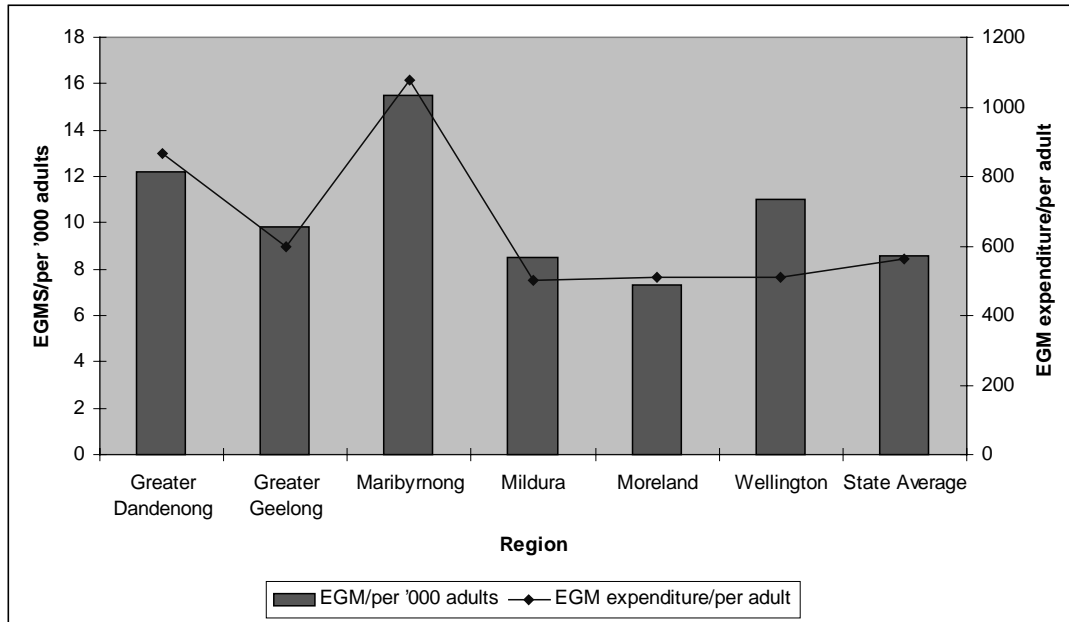
Figure 5.1: EGM density and socio-economic advantage by local government area¹

¹ Socio-economic advantage was measured by the ABS's SEIFA index. The index is constructed from a range of factors such as unemployment rates, the incidence of one-parent families with dependent offspring and some occupational categories.

Source: VLGA 1999, p. 12

Of the six local government regions covered by this study, two — Maribyrnong and Dandenong — have significantly higher numbers of gaming machines per adult than the Victorian average, with another two — Wellington and Geelong — being above the State average. This pattern is also largely reflected in gaming expenditure per adult — expenditure per person is particularly high in Maribyrnong and Dandenong. The one exception is Wellington, where the high density of gaming machines per person is not reflected in high expenditure per person (see Figure 5.2 and **Table 5.1**). Another region, Moreland, has a high number of machines and venues in a small area of the municipality, Brunswick.

Figure 5.2: Number of EGMs per thousand adults and EGM expenditure per adult



Source: VCGA data

Four of the local government areas that have been investigated in this study —Maribyrnong, Dandenong, Moreland and Geelong — have been at the forefront of local government action and concern about gambling. The Cities of Greater Dandenong, Maribyrnong and Moreland have developed policies on gambling and made submissions about the local impact of gambling to the Productivity Commission's inquiry. The City of Greater Geelong has been active in opposing 24 hour EGM venues, and testing the power of the Liquor Licensing Tribunal to consider applications on the basis of the social and economic impact of gaming (see Supporting Paper No 2).

Despite councils' concerns about the economic and social impact of gambling on their communities, councils have had limited powers to intervene. Venues that decide to install gaming machines are only required to obtain a planning permit when poker machines exceed 25 per cent of the total licensed area where liquor can be sold. However, the scope for council intervention appears to have broadened following decisions by the Victorian Civil and Administrative Tribunal and the Liquor Licensing Commission that the social and economic impact of gaming can be considered in planning applications.

Table 5.1: Distribution of gaming venues and machines in the study's six areas

	Greater Dandenong	Greater Geelong	Marib'g	Mildura	Moreland	Wellington
Number of Clubs						
Small (0-19 machines)	0	1 (0)	3 (5)	1 (5)	2 (5)	1 (5)
Medium (20-49 machines)	1 (35)	9 (323)	2 (69)	3 (119)	4 (150)	5 (146)
Large (50+ machines)	9 (686)	6 (465)	3 (270)	1 (67)	2 (109)	1 (65)
Number of Hotels						
Small (0-19 machines)	0	1(0)	0	0	0	0
Medium (20-49 machines)	2 (70)	5 (154)	2 (104)	1 (24)	4 (158)	2 (46)
Large (50+ machines)	4 (403)	7 (460)	3 (316)	1 (75)	5 (378)	0
Number of gaming venues	16	28	15	7	16	10
Total number of machines	1,194	1402	764	290	795	332
Population	98,564	142,064	49,341	33,947	108,677	30,193
Average number of machines per thousand adults	12.11	9.87	15.48	8.54	7.32	11.00
Total Expenditure (\$)	85,590,514.00	84,921,326.00	53,254,055.00	16,998,177.00	55,442,642.00	15,448,176.00
Average expenditure per adult (\$)	868.38	597.77	1,079.31	500.73	510.16	511.65

Source: VCGA 1999. Number of adults reflects adults over the age of 18. The figures in parentheses are numbers of EGMs. Note that it is possible for a venue to have a licence for EGMs from the Authority but to have no contract with TABCORP or Tattersalls, and thus to have no machines.

The new Victorian Government has announced that regulation of the gaming industry should secure a more balanced approach to gambling and better protect the community from the adverse effects of gambling. In February 2000, the Government released a consultation paper entitled *Responsible Gaming* in which it sought public comments on various initiatives to reduce the incidence of problem gambling. The Government's policies on gambling include to:

- freeze the number of gaming machines in Victoria;

- impose regional caps on gaming machines;
- give local councils a say in the placement of gaming machines in their areas;
- compel gaming operators, the casino operator, gaming venues, gaming venue operators, and gaming machines manufacturers to give players meaningful information;
- limit 24 hour gaming venues, with bans in regional Victoria;
- give powers to impose limits on advertising;
- set up an independent panel to oversee research into gambling matters; and
- strengthen the independence of the Victorian Casino and Gaming Authority (Department of Treasury and Finance 2000, p. 3).

The Government enacted these policies through the Gambling Legislation (Responsible Gambling) Act 2000 which came into effect on 10 May 2000. In relation to a greater say for local councils, the new law will:

- require local Councils from the municipal district in which the premises are located to be informed of new applications, and applications seeking to increase the number of gaming machines in their areas;
- allow local Councils to submit their views to the VCGA on the social and economic impacts on the community of the municipal district, of applications for new gaming premises or for increased gaming machine numbers; and
- require the VCGA to consider local Council views when determining the applications for new gaming premises or increased gaming machines numbers.

The release of the Productivity Commission's Final Report on Gambling in December 1999 has also brought into the public arena analysis and discussion of potential policy responses to gambling in Australia. In relation to the role of local government, the Commission said:

“To the extent that decisions about gambling accessibility have their predominant impacts at the level of local communities, this would suggest the need for a collective say at that level. ... The principle of local communities being consulted has force. The control authority should at least be required to consult with local communities in making decisions about licence applications. This could include surveys or, on major issues, referenda.” (Productivity Commission, 1999, Volume 1, p. 60)

The Prime Minister welcomed the report and stated that he would convene a Ministerial Council on gambling to achieve a national approach to the challenge of problem gambling.⁸ The first meeting of the Ministerial Council was held in April 2000, where issues such as the regulation of internet gambling were discussed.

⁸ Prime Minister “National approach to problem gambling”, press release, 16 December 1999.

It is against this background of local and national concern about the impact of gambling and the appropriate response by governments, that this longitudinal community impact study is being conducted. This chapter draws together:

- our findings about the community's views of, and participation in, gambling;
- the impact of the introduction of EGMs and the casino on the economies of the six study regions; and
- our findings on problem gambling in the six regions and factors driving expenditure on gaming; and

5.2 The community's views of gambling

5.2.1 The study found widespread disapproval of gambling

This study has found widespread disapproval of gambling. Across the six regions:

- 81 per cent of people surveyed disagreed with the statement that 'gambling does more good for the community than harm'; and
- 82 per cent agreed that 'gambling is a serious social problem'.

The study did not find significant differences in views between the six study regions, despite differences in poker machine density between the regions. However in Mildura, where there is a lower density of gaming machines than the State average and where people have been exposed to gaming across the border since 1956, people were less likely to hold negative views about gambling, although the majority still held negative views. And people in Wellington held even more negative views about gambling, than the average across the study regions (see Table 5.2). Wellington has a higher gaming machine density but lower gaming expenditure than the state average.

Table 5.2: Views about gambling by region (% of respondents who agree with the statement)

Survey question	Average for 6 regions	State-wide average ¹	Moreland	Mildura	Geelong	Wellington	Dandenong	Maribyrnong
Gambling does more good for the community than harm	5	8	2	6	6 ²	2 ²	6	5
Gambling is a serious social problem	82	80	87	72 ²	81	87 ²	89	84
I think electronic gaming (or pokies) have been good for our suburb or region	10	n/a	6	19 ²	8	5 ²	12	11
Overall, this is a good suburb or region to live in	78	n/a	84	75	88 ²	87 ²	60 ²	69 ²
This suburb or region is better to live in now than 3 years ago - % who agree ³	31	n/a	33 ²	35	38 ²	17 ²	25 ²	37 ²
This suburb or region is better to live in now than 3 years ago - % who disagree ³	21	n/a	18	17	16 ²	19 ²	48 ²	27 ²
EGMs/'000 adults	10.3	8.6	7.3	8.5	9.9	11.0	12.1	15.5
EGM expenditure/adult	\$677	\$562	\$510	\$501	\$598	\$512	\$868	\$1,079

1 The state-wide average is from the Roy Morgan 'Patterns' survey.

2 The result for this region is statistically significantly different from the average of the six regions.

3 A large percentage of respondents provided a neutral answer to this question. For this reason, we have presented both the percentage agree and the percentage disagree figures to provide a broader picture of perceptions of the region.

Source: KPMG Longitudinal community impact survey, and Roy Morgan Research, "Sixth Survey of Community Gambling Patterns and Perceptions" (April 1999), page 76.

The findings of our regional study are similar to those reported in the Roy Morgan 1999 'Patterns' survey which surveyed community gambling patterns and perceptions across the State. The 1999 Patterns survey found:

- 77 per cent of people surveyed disagreed with the statement that 'gambling does more good for the community than harm', compared to 81 per cent in our regions; and
- 80 per cent agreed that 'gambling is a serious social problem', compared to 82 per cent in our study regions.

Our findings are also consistent with the findings of other research commissioned by the Authority into the impact of gaming at the local level. For example, the study "Impact of Gaming Venues on Inner City Municipalities" conducted for the Authority in December 1997 found that 70 per cent of all respondents agreed that gambling does more bad than good.

To summarise, our study found:

- widespread disapproval of gambling in the six study regions;
 - consistent with the findings of previous state-wide and local studies;
- disapproval of gambling is fairly uniform across the six regions;
 - people in areas of high gaming machine density and high expenditure on gaming hold similar views about gambling to the state-wide average;
 - there is no evidence of greater concern or disapproval of gambling in the areas with very high EGM density such as Maribyrnong or Dandenong.

5.2.2 People's views about gaming do not affect their feeling about their suburb

Our study found that the majority of people in the six regions considered that gaming machines had been bad for their suburb or region. Only 10 per cent of people agreed that 'electronic gaming (or pokies) has been good for our suburb or region' (see Table 5.2).

This view was not affected by the concentration of gaming machines in an area. For example, the percentage of people in Maribyrnong and Dandenong who considered that gaming had been bad for their region was similar to the average across the six regions.

The exception was Mildura where a larger percentage (19%), but still a minority of people, considered that gaming had been good for their region. The less negative view about gaming in Mildura may reflect that the residents of Mildura have been exposed to poker machines since 1956, given their proximity to large clubs with EGMs across the border in Wentworth, NSW, and that Mildura has a low density of gaming machines compared to our other study regions.

Our study also found no correlation between people's views about the quality of their suburb, and their views about the impact of gaming machines on their suburb. For example people who considered that gaming had had a bad impact on their suburb, were just as likely to agree that their suburb was good overall, as they were to disagree that it was a good overall.

This finding suggests that the presence of electronic gaming is not a key factor in people's assessment of their suburb — other qualities determine people's views of their suburb. Having said this, people in Maribyrnong and Dandenong — the regions with the highest concentration of gaming machines and highest levels of per capita gaming expenditure — were less likely to rank their suburb as good overall, than the average of people in the six regions as a whole.

However, it is difficult to draw any conclusions from this, given that people in Geelong and Wellington — also regions with higher than average gaming machine density — were more likely to rank their suburb as good overall, than the average for the six regions. We found that people who had a good family life, who went to pubs and clubs frequently and who were positive about the local economy, were most likely to believe that their suburb was a good place to live.

Other evidence that gaming machines are not a key factor in people's assessment of their suburb is provided by people's views of their region over time. In all of the six study regions, the number of gaming machines increased over the three years to September 1999, when our survey was conducted. Despite the finding that people considered that gaming had been bad for their region, in four of the six regions there were more people who considered that their suburb was better than it was three years ago. For example in Maribyrnong, where the number of gaming machines increased from 735 to 771 in the three years to June 1999, 37 per cent of respondents agreed that their suburb was better to live in now than three years ago, compared to 27 per cent who disagreed. If gaming machines were a primary factor in people's assessment of their suburb, then we would expect that negative views about gaming machines combined with an increase in gaming machines would translate to people feeling more negative about their area as a place to live.

To summarise, our study of the six regions found:

- no correlation between people's views about the quality of their suburb, and their views about the impact of gaming machines on their suburb; and
- the presence of electronic gaming is not a primary factor in people's assessment of their suburb or region.

5.2.3 Despite community disapproval, there is widespread participation in gambling

Despite community disapproval, our study has found widespread participation in gambling in the six regions. While 81 per cent of people considered that gambling did more harm than good, 51 per cent of people participated in gambling over the last six months. Gamblers appear to manage the paradox that, on the one hand they believe gambling is bad and on the other hand they indulge in it. A surprising feature of our study was that there was little difference between regions in the proportion of people participating in gambling, the frequency with which they game and their reported gaming expenditure (see). While table 5.3 shows differences in results between regions, very few of these differences were statistically significant, and therefore in most

cases we cannot conclude that a particular region is different from the group. The only exception was Wellington where people spend less time playing poker machines than the average.

This finding that there were few statistically significant differences between the regions in terms of gambling patterns is surprising given the large differences in gaming machine density between the regions. It is also at odds with the data provided by the Authority showing large differences in gaming machine expenditure by region (see Figure 5.2). It seems likely that our samples of 167 respondents in each region may have been too small to pick up differences in gaming patterns between regions.

To summarise, our study of six regions found:

- half of those surveyed participated in gambling, despite widespread disapproval of gambling; and
- no significant differences in gambling patterns between regions, although this may reflect that our sample size was too small to pick up such differences.

Table 5.3: Participation in gambling by region

Survey question	Average for 6 regions	State-wide average ¹	Moreland	Mildura	Geelong	Wellington	Dandenong	Maribyrnong
Have you participated in any gambling activities in the last 6 months (% agree)	51	76 ⁴	51	56	53	45	53	50
How often do you gamble on or play poker machines at a pub or club (no. of times in last year)	8	NA	8	8	9	7	9	9
Each day you play the pokies, how much time do you spend playing the machines (minutes)	55	67	51	55	50	39 ²	67	64
Each day you play the pokies, on average, how much money do you spend or outlay (\$) ³	46	31 ³	158	20	21	16	29	29
EGMs/'000 adults	10.3	8.6	7.3	8.5	9.9	11.0	12.1	15.5
EGM expenditure/adult	\$677	\$562	\$510	\$501	\$598	\$512	\$868	\$1,079

1 The state-wide average is from the Roy Morgan 'Patterns' survey.

2 The result for this region is statistically significantly different from the average of the six regions.

3 The question asked in the 'Patterns' survey was slightly different from the KPMG question, and therefore care should be exercised in making comparisons. The Patterns question was "Each time you play EGMs not at the casino, what is the dollar value you are prepared to or would outlay on this activity?"

4 The level of participation in gambling in the six regions is not comparable with the State average. This is because the KPMG survey asked people whether they had participated in gambling in the last six months, whereas the Roy Morgan state-wide survey asked people whether they had participated in gambling in the last 12 months.

NA Not available. This question was either not asked, not asked in a similar way or not reported in the Patterns survey.

Source: KPMG Longitudinal community impact survey, and Roy Morgan Research, "Sixth Survey of Community Gambling Patterns and Perceptions (April 1999)", page 124-127.

5.2.4 Most people play poker machines for social and entertainment reasons

Our study found that most people played poker machines for social or entertainment reasons, rather than out of compulsion or to make money, and that this finding applied to all of our study regions (see Table 5.4). The most commonly cited reason for playing pokies was for social reasons or to see friends. Playing poker machines was part of a broader social experience which included having meals, rather than being an end in itself. This is reflected in the fact that the majority of respondents had a meal the last time they played the pokies, and that of the time spent at the venue, less than half was spent playing pokies. In addition, players selected a particular venue because of qualities such as the meals, more often than qualities associated with the gambling experience.

The majority of players said that they had enjoyed themselves when last they played the pokies, even though only about 20 per cent said that they had had good luck, also supporting the view that people are playing for entertainment reasons rather than to make money.⁹

When asked how they would spend their money if they hadn't spent it gaming, few people cited essentials such as rent, mortgage, bills or credit cards. Across the regions, only 6 per cent of players said they would use money not spent on gaming for bills and credit cards, and only 2 per cent said they would use it to pay the rent or mortgage. Having said this, 23 per cent of respondents said they would spend it on 'groceries or small household items' and another 23 per cent said that they would spend it on 'personal items (eg clothing, footwear)'. These two categories include essential and non-essential items, making it difficult to draw conclusive findings about whether gaming is diverting expenditure away from essentials.

Overall, our study has found that despite holding negative views about gambling, the majority of people choose to gamble, and do so for entertainment reasons. Gaming is a part of the entertainment mix that people are now seeking. The fact that people are frequenting venues that offer gaming, rather than alternative venues, indicates that they value this form of entertainment or the facilities offered by gaming venues.

In this regard, our finding confirms the Productivity Commission's finding that the main benefit of Australia's gambling industries is the enjoyment that consumers derive from gambling:

“the benefits of liberalisation of the gambling industries largely comprise the increased satisfaction that consumers gain from having access to legalised gambling ...” (PC 1999, p. 31)

5.2.5 Policy implications

Our finding that most people game for entertainment reasons has important policy implications for how state and local governments regulate for the adverse social effects of gaming. It indicates that to restrict gaming — by for example re-instituting a ban on poker machines — could

⁹ The finding that the majority of people had enjoyed themselves when last they played the pokies is somewhat at odds with responses to earlier questions in the survey. When asked whether they were satisfied or dissatisfied with their experience of playing the pokies, on a scale of 1-100 where 100 is very satisfied, the average response was 47.

diminish the social and entertainment benefits to the majority of players, who choose this form of entertainment over alternatives. In KPMG Consulting's view, this emphasises the importance of adopting targeted measures that address problem gambling while avoiding adverse impacts on recreational gamers.

To summarise, our study of six regions has found that:

- most people play poker machines for social and entertainment reasons; and
- the widespread participation in poker machine playing indicates that people are deriving recreational benefit from it;
 - and that to significantly restrict access to poker machines, could reduce these benefits to recreational players.

Table 5.4: Reasons why people gamble by region

Survey question	Average for 6 regions	Moreland	Mildura	Geelong	Wellington	Dandenong	Maribyrnong
What are the main motivations, attractions or reasons you play the pokies? (leading reason)	social reasons, see friends	social reasons, see friends	social reasons, see friends	social reasons, see friends	social reasons, see friends	social reasons, see friends	social reasons, see friends
Percentage of players who had a meal the last time they played pokies	62	58	62	58	61	64	51 ¹
Reasons why players select a particular venue							
— because it is a good place to gamble	31	42	41	49 ¹	36 ¹	45	45
— because there are good meals & restaurants	65	59	74 ¹	64	68	64	62
Each day you play the pokies, how much time do you spend playing the machines (minutes)	55	51	55	50	39 ¹	67	64
On your last visit to a gaming venue, how long did you stay? (minutes)	150	144	168 ¹	144	132	162	132
% who had really good luck when they last played pokies	22	30	41 ¹	38	35	36	28 ¹
% who enjoyed themselves	63	60	63	64	64	65	60
If I hadn't spent the money on gambling, I would have (% agree)							
— used it to pay bills/credit cards	6	7	5	10	3	1 ¹	10
— used it to pay rent/mortgage	2	0	4	1	1	2	1
— spent it on groceries or small household items	19	23	25	22	29	23	20
EGMs/'000 adults	10.3	7.3	8.5	9.9	11.0	12.1	15.5
EGM expenditure/adult	\$677	\$510	\$501	\$598	\$512	\$868	\$1,079

1 The result for this region is statistically significantly different from the average of the six regions.

Source: KPMG Longitudinal community impact survey

5.3 Impact of gaming on the local economy of the six study regions

An important part of the terms of reference for this study is the impact of gaming on the local economies of the six regions. The terms of reference require us to report on changes in:

- employment patterns;
- the structure of the local economy;
- expenditure patterns; and
- the economic benefits of the establishment of gaming venues.

The terms of reference also ask us to examine the spatial dimensions of gaming, namely movements of people in and out of the regions to participate in gaming.

Our study found that people in the regions held diverse and opposing views about the economic impact of gaming. Some argued that gaming had boosted local economies, pointing to investment in gaming venues and the expansion in employment in the venues. Others argued that expenditure in gaming had been at the expense of expenditure in other local businesses, and that, overall, gaming had drained funds from the local economy because of high levels of taxation and profits to the duopoly gaming machine owners. This led local governments to question whether the growth of the gaming industry was in the interests of their local economy.

In this section we report our findings about the economic impact of gaming in the six study regions, and draw some conclusions about the appropriate stance of local government towards the gaming industry from an *economic* perspective. In the next section we will consider this issue from a *social* perspective, taking into account the adverse social effects of problem gambling.

5.3.1 Investments and employment in the gaming industry

Our study has found that the introduction of gaming has led to significant investment and employment in pubs and clubs offering gaming in all of the study regions. Examples of the investments in venues that we saw during our visits to the six regions included:

- Mildura: the refurbishment of the Gateway Tavern;
- Dandenong: the multi-million dollar expansion of the Dandenong Club;
- Geelong: the distinctive redevelopment of the Golf Links Hotel.
 - The hotel has been modelled on the Egyptian sphinx, and there are further plans to construct motel and conference facilities modelled on the Egyptian pyramids;
- Moreland: the refurbishment of many of the declining hotels along Sydney Road;
- Wellington: the renovation of the Greyhounds Club; and

- Maribyrnong: the expansion of the dining facilities at the Anglers Tavern.

In most cases, venue owners cited the liberalisation of Victoria's gambling policies as an important factor in these investments.

ABS data provides some indication of the significance of gaming in providing employment in our study regions. The ABS classifies gaming as one component of cultural and recreational services. Cultural and recreational services provided 4,619 jobs, or 1.9 per cent of total employment in the six local government areas (LGAs) under study. The share of the cultural and recreational sector in total employment ranges from 1.3 per cent in the City of Moreland to 2.9 per cent in the Rural City of Mildura. This ABS employment classification is based on the industry of the establishment concerned; this total would therefore include persons employed in purely gaming establishments, and in gaming associated with sporting venues. It also includes cinemas, libraries, parks and sporting facilities with no gambling component, while it excludes gambling employment in establishments primarily concerned with food and drink (these are included in the classification 'accommodation, cafes and restaurants').

Accommodation, cafes and restaurants (including pubs, taverns, bars and clubs) provide 9,065 jobs, or 3.8 per cent of employment in the six regions being studied. The proportion ranges from 2.5 per cent in Greater Dandenong to 7.3 per cent in Mildura, with generally higher concentrations in the rural cities and shires.

The Victorian Casino and Gaming Authority does not ordinarily have access to data on employment in gaming establishments. However, a 1996 survey of gaming venues by the Authority elicited a 33 per cent response rate in a study area which included the LGAs of Maribyrnong, Moreland, Darebin and Moonee Valley. It found that after allowance for self-employment, gaming venues provided less than 15 per cent of total food-related, sporting and cultural employment in those four municipalities. Generalising from these results indicates that gaming venues provide up to 0.9 per cent of employment in the six study regions.¹⁰

To summarise, our study has found substantial investment and employment in gaming venues since the liberalisation of gaming in 1992.

5.3.2 Gaming is primarily local

Our study has found that people game locally. On average people travel only 2.5 kilometres to play pokies, and they are much more likely to play pokies at a local pub or club than at Crown Casino. Only 16 per cent of gamers cited Crown Casino as the venue they frequented the most, with 88 per cent of respondents citing a pub/hotel, a licensed sports club or the RSL as the venue they visit the most (see Table 5.5).

The finding that gaming is primarily local applied to all six regions. People in Mildura tended to travel a little further (3.2 km) to play pokies than people in the other regions, probably reflecting

¹⁰ This result is obtained by multiplying the percentage of total food related, sporting and cultural employment provided by gaming venues (less than 15% based on 1996 VCGA survey) by the percentage of employment in the six study regions accounted for by these two categories of businesses (cultural and recreational services - 1.9%, and accommodation, cafes and restaurants - 3.8%).

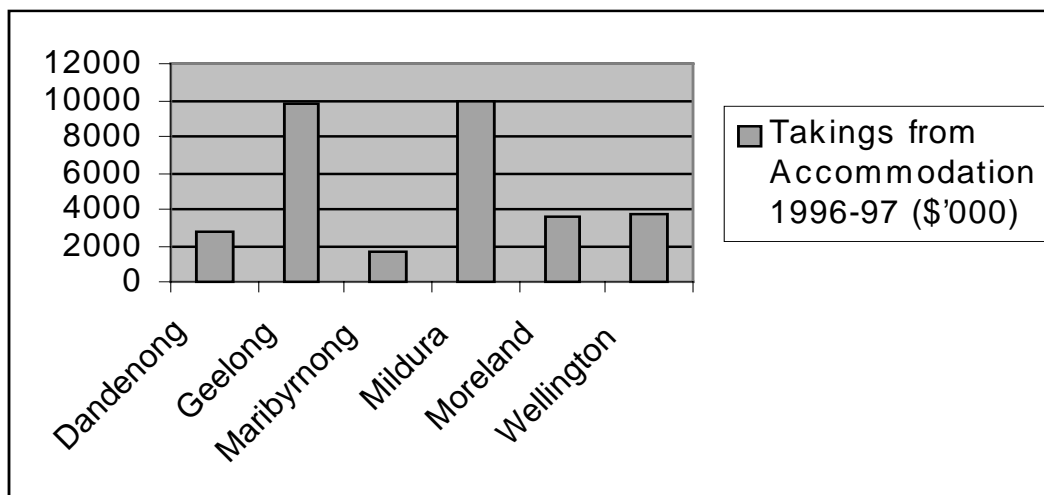
the large geographic area covered by the City of Mildura, and people's historical association with clubs across the border in Wentworth.

The pattern of local gaming was also reflected in attendance at the casino. People living in the two local government areas closest to the casino, Moreland and Maribyrnong, were more likely to attend the casino than our study average, and people in Mildura and Wellington were less likely to attend the casino.

Our findings are similar to those found by earlier regional studies, and the state-wide trends evident from the Patterns survey. The Patterns survey found that across the state, most people travelled less than five kilometres to play poker machines, and were three times more likely to play pokies at clubs or hotels than at the casino. The 1997 study commissioned by the Authority on the impact of gaming venues on inner city municipalities found that 73 per cent of the most recent gambling activity was undertaken in EGM facilities in local pubs and clubs, 24 per cent on EGMs at the Casino and 3 per cent on other gambling forms at the Casino (VCGA 1997a, p. 4-5).

As part of exploring movements by people between regions to game, we explored the link between gaming and tourism. Figure 5.3 compares the size of the tourism industry in each of our six regions (as measured by takings from tourism accommodation) and shows that there is significant variation between the regions, with Mildura and Geelong being important centres for tourism. In our econometric work we tested whether gaming expenditure in a region was affected by the level of tourism. We also tested whether the availability of gaming provided a boost to tourism. The econometric work was based on data for all Victorian regions, and therefore the findings relate to all of Victoria, not just the six study regions.

Figure 5.3: Takings from tourism accommodation, 1996-97



Source: ABS

We found that the greater the amount of tourism in a particular area, the greater the amount of gaming expenditure. However the effect was quite small: for each additional dollar spent on accommodation, only a further three cents was bet on poker machines.

We did not find that gaming boosted tourism. The amount gambled in a region did not affect the overall bed occupancy rate, the level of employment in hotels and motels or the amount spent on accommodation. This finding is consistent with our conclusion that people game locally, rather than travelling to other regions to participate in gaming.

This finding may also be influenced by the widespread availability of gaming following the liberalisation of gaming in 1992. It is likely that we would have found that gaming contributed to tourism in border areas such as Mildura when poker machines were only available in NSW. Indeed tourism operators in Mildura and gaming venue operators across the border said that, prior to 1992, Mildura had been an important accommodation base for people gaming at clubs in Wentworth, NSW.

In this regard, our findings mirror those of another recent study commissioned by the Authority, “The Impact of the Expansion of Gaming on the Tourism, Entertainment and Leisure Industries” (VCGA 2000b). That study concluded that there was no appreciable relationship between the introduction of EGMs to hotels and clubs and international and interstate tourism apart from border destinations. However, the study found that the introduction of EGMs to clubs and hotels in Victoria appeared to have contributed moderately to a reduction in cross-border leakage of gaming revenue particularly from the NSW Murray border clubs.

To summarise, our study has found:

- people game locally;
- gaming does not provide a substantial boost to tourism;
- most expenditure on gaming is spent in the gamer’s local economy.

Table 5.5: Where people game

	Average for 6 regions	State-wide average ¹	Moreland	Mildura	Geelong	Wellington	Dandenong	Maribyrnong
(In the last year) How often do you gamble or play								
— pokies at a club or pub?	8	NA	8	8	9	67	9	9
— pokies at Crown Casino?	1.1	NA	1.9 ²	0.6 ²	1.5	0.6 ²	1.2	1.0
— Table games at Crown Casino?	1.4	NA	2.8 ²	0.6 ²	0.9	0.6 ²	1.3	2.0
Which venue do you go to the most to play pokies (single response)?								
— Pub/hotel	36	39	40	24 ²	45	30	39	38
— Licensed sports club	22	21	16	24	25	46 ²	14 ²	8 ²
— RSL Club	14	14	9	25 ²	7 ²	12 ²	16	14
— Crown Casino	16	20	31 ²	5 ²	12	6 ²	20	19
When you last played the pokies (excluding Crown Casino) how far did you travel to get to the venue (kms)	2.5	NA	2.4	3.2 ²	2.5	2.9	2.1	1.9
EGMs/'000 adults	10.3	8.6	7.3	8.5	9.9	11.0	12.1	15.5
EGM expenditure/adult	\$677	\$562	\$510	\$501	\$598	\$512	\$868	\$1,079

- 1 The state-wide average is from the Roy Morgan 'Patterns' survey. The Patterns survey did provide information on frequency of participation in gambling, but the questions were framed differently from those in the KPMG survey, and therefore the results were not comparable.
 - 2 The result for this region is statistically significantly different from the average of the six regions.
- NA Not available. This question was either not asked, not asked in a similar way or not reported in the Patterns survey.

Source: KPMG longitudinal community impact survey, and Roy Morgan Research "Sixth Survey of Community Gambling Patterns and Perceptions (April 1999).

5.3.3 Impacts on other businesses

5.3.3.1 Findings of our consultations and consumer survey

Many of the traders not involved in gaming who we consulted argued that gaming had attracted money away from their businesses, with adverse economic consequences. For example, members of the Glenroy Chamber of Commerce (part of the City of Moreland) stated that they had noticed reductions in sales of consumer durables which they attributed to rising expenditure on gaming. A member of the Chamber who owned a café commented on the difficulties in competing against the subsidised meal prices offered at poker machine venues. Officers of the City of Dandenong said that local traders' associations had reported a decline in sale of whitegoods coinciding with the introduction of the gaming machines.

Businesses most affected by the introduction of poker machines were those that competed most closely with pokie venues. The most obvious examples were the clubs in Wentworth, across the border in NSW from Mildura, which had suffered substantial reductions in visitation following the liberalisation of poker machines in Victoria and SA.

Owners of hotels said that the hotel market was now divided into three main groups —pokie pubs, entertainment pubs and 'dining' pubs. The old style corner pub that failed to offer these extra qualities was losing patrons to competitors. Hotel owners were not claiming that they had to install poker machines — some argued that they were operating in a different market niche, such as providing live entertainment, and were not competing against poker machine venues.

In some cases, the liberalisation of poker machines had had unexpected effects. For example, a member of the Geelong Chamber of Commerce said that it led to a realignment of the football leagues in the Geelong region. The league which previously had lower quality players was now in a position to pay players more than the leading league, because it had become more profitable following investments in poker machines.

Our consumer survey also provides some insights into how the introduction of gaming has affected people's expenditure patterns. Gamers were asked what they would spend their money on if they hadn't spent it on gaming. The most frequently cited responses were:

- groceries or small household items (23 per cent);
- personal items, such as clothing and footwear (23 per cent);
- not spent it/saved it/put it in the bank (20 per cent); and
- other entertainment or recreation activities (19 per cent).

Interestingly, only 4 per cent of gamers said they would put the money towards major household goods (eg TV or refrigerator), in contrast with traders' perceptions that gaming had taken expenditure away particularly from consumer durables.

Our finding of significant investment in gaming venues, combined with perceptions by some other traders that gambling is eroding their sales, is broadly in line with the findings of previous studies commissioned by the Authority. For example, the Authority's 1999 "Hotel and Club Industry Gaming Impact Study" concluded:

"The introduction of EGMs into Victoria has had major impacts on gaming venues. The most obvious impact has been the increased revenue directly attributable to EGMs. ... Hence, gaming venues have a significant financial advantage which has allowed them to make substantial improvements to buildings and facilities resulting in improved opportunities for patrons. However, the impact of the introduction of EGMs into Victoria is somewhat less clear for non-gaming venues. Consequently they are less likely to have made improvements to buildings and facilities resulting in limited improvements in opportunities for patrons when compared to gaming venues." (VCGA 1999b, p. xiii).

5.3.3.2 *Isolating the impact of gaming from other economic factors affecting businesses*

There is little doubt that the scale of investments and expenditure in gaming over the past seven years has impacted upon the economies in the six study regions. However, as with any economic change it is difficult to precisely measure the magnitude of these effects, and their specific causes. For example, it is difficult to determine to what extent the growth of gaming venues reflects this policy change, and to what extent it reflects that consumers throughout Australia are spending a greater share of their income on entertainment.

Similarly it is difficult to assess the extent to which the decline in participation in a particular community association reflects competition from poker machine venues or a broader trend away from participation in community associations. In the same vein, the Glenroy Chamber of Commerce, which represents traders in a strip shopping centre in Moreland, noted that it was difficult to determine whether any declines in business they observe are due to expenditure on gaming or other developments such as expansion of the Highpoint shopping complex.

Nevertheless, many economists would argue that it is inevitable that a significant increase in the size of one industry, such as gaming, will draw resources from other industries, and a significant increase in expenditure on a new industry, like gaming, will be reflected in lower expenditure on the goods and services produced by other industries. Expenditure on other industries may not be lower in absolute terms, but it will be lower in relative terms—relative to what it would have been if the gaming industry did not exist. The overall growth in the economy may mean that industries competing with gaming are still larger in 2000 than in 1992, but they would have been even larger in the absence of their new competitor, the gaming industry.

A previous study commissioned by the Authority (VCGA 1997d) found that the Victorian retail sector had grown alongside growth in gambling expenditure. The study found that Victorian per capita retail expenditure rose from \$5,242 in 1989-90 to \$6,765 in 1995-96, an increase of \$1,523. Over the same period, per capita gaming expenditure rose from \$198 to \$581, an increase of \$383 (VCGA 1997d, p. ii). This evidence would indicate that over the six years to 1995-96, economic growth combined with a reduction in household savings, enabled both gaming expenditure and retail expenditure to expand.

Economists often use general equilibrium models to identify the impact of changes in a particular industry on all other industries in the economy, and the Productivity Commission used this approach in its inquiry. An important finding of the Commission was that the demonstrable growth in the gaming industry over the last decade and the investment and employment associated with it, significantly overestimates the effect of gaming on the economy. This is because it does not take into account the negative effect of the growth in gaming on the output and employment of industries that compete with gaming (both for the consumer dollar and for inputs to production). When this factor was taken into account in the Commission's study, the economic benefits of gaming were considerably smaller. The Commission concluded:

“The net outcome, deducting estimated costs of problem gambling from net consumer benefits (including tax transfers), ranges in aggregate from a net loss of \$1.2 billion to a net benefit of \$4.3 billion for 1997-98.” (PC 1999, p. 31)

In our study we considered whether general equilibrium models could shed light on the economic effects of the introduction of gaming at the local level. One drawback is that these models are highly aggregated, both at an industry level and at a geographic level. To make findings at a local level and to draw differences between regions, it would be necessary to develop a data set on industries and consumption patterns disaggregated to the local level. This was beyond the scope of this project. We discuss the results of another study commissioned by the Authority to measure regional impacts in section 5.3.4.3.

5.3.4 Policy implications

The views of local traders that gambling is harming their businesses led parties we consulted with to question whether governments should intervene to curb the growth of the gambling industry. There are many aspects of this question:

- First, should governments intervene to influence consumer expenditure?
- Second, given the significant share of gambling expenditure which goes to the state government and gaming machine operators (TABCORP and Tattersalls), should government intervene to stop this leakage from the local economy?
- Third, should government curb gambling to limit the economic and social costs of problem gambling, such as increased demand on welfare agencies?

5.3.4.1 *Diversion of spending from local businesses*

Considering the first point, in KPMG Consulting's view, changes in consumer expenditure following the introduction of gaming does not of itself justify government intervention. The economy is constantly undergoing change in response to changes in consumer tastes, technology, productivity and prices. The rise and fall of industries is a feature of a dynamic economy. To dampen these effects would be to deny consumers the benefits of using their money in the way that gives them greatest material pleasure.

Having said this, the liberalisation of gaming has probably had a more dramatic economic effect than other changes because of its previous prohibition. Whereas other industries have been able to steadily grow or contract in response to evolving consumer tastes, this was not the case for the gaming industry and its competitors, given the prohibition on gaming. As a result, when policy was liberalised, gaming and competing industries went through a 'catch-up' period causing rapid adjustment.

To some extent broader economic developments have helped to cushion the effect of these changes on competing businesses. In particular, the overall expansion in the economy and the rising share of income devoted to entertainment and leisure provided a stimulus to businesses that were feeling the effects of competition from gaming venues. For example in Maribyrnong where the increase in gaming venues has been most pronounced, the unemployment rate has fallen from 18.9 per cent in 1996 to 14.6 per cent in 1999. It is likely that an improvement in local economic conditions has contributed to this, which would also have provided a stimulus to businesses competing with gaming venues. In addition the adjustment pressure created by the rapid expansion in the gaming industry is likely to moderate over time as the industry matures and, if as expected, growth in consumer expenditure on gaming stabilises.

Given that the impact on other businesses of the expansion in the gaming industry largely reflects changes in how consumers want to spend their money, KPMG Consulting considers that the impact on other businesses is not in itself a reason why governments should seek to curb the growth of the gambling industry. This is not to deny that local and State governments may wish to curb the growth of the gaming industry for social reasons — an issue we explore in the next section.

5.3.4.2 *Leakages from the local economy as a result of taxation and appropriation of profits to TABCORP and Tattersalls*

During our consultations, some parties questioned whether governments should curb the growth of the gaming industry because of the high levels of taxation and the appropriation of profits to TABCORP and Tattersalls. Our consultations revealed considerable concern by local governments and local traders that gaming machines were draining funds from the local community. This concern was greatest among councils with a high concentration of gaming machines, and reflected concerns about the uneven incidence of gaming machines by local government area, and their concentration in areas of high unemployment (see Figure 5.1).

Councils and local traders were concerned that gaming machines led to a leakage of funds from the local community because of the significant share of gaming machine revenue that was taxed or appropriated by the machine owners, TABCORP and Tattersalls.

Councils were concerned that the uneven taxation of local communities through gambling taxes was not matched by distributions of gambling taxes through the Community Support Fund. As discussed in chapter three, most payments from the Community Support Fund are used to fund large government programs such as Turning the Tide drug initiatives, the benefits of which flow to people in all regions and are difficult to apportion at a local level. For example, in its submission to the Productivity Commission's inquiry, the City of Dandenong said:

“Contribution to the Community Support Fund from gaming activities in the six hotels in Greater Dandenong is conservatively estimated at \$2.5 million annually. ... The Greater Dandenong community benefits from statewide projects such as the Turning the Tide Drug Initiatives program, gambling and financial support programs, and the various family support and youth homelessness programs funded through the CSF. However information about the proportion of these statewide programs allocated to the Greater Dandenong community is not available or very difficult to obtain from the Departments which administer them. Improved reporting systems need to be developed and such information incorporated into local economic and social analysis of gaming. In addition, the only identifiable local allocation from the reports supplied by the CSF from total State allocations for projects so far, is \$100,000 for the construction of a Community Hydrotherapy Centre at the Dandenong Valley School. A better process for identifying and returning the Community Support Fund revenue to the Greater Dandenong community could be developed.”
(City of Dandenong 1998, p. 8-9)

The issue of leakages from local communities raises policy questions beyond the scope of this study, namely the level of gaming taxation and the decision of past governments to allow TABCORP and Tattersalls to be the exclusive suppliers of gaming machines in Victoria. Changes in these policies could increase the percentage of takings returned to gamblers, possibly reducing leakage effects. The Victorian Government will be reviewing these issues as part of the forthcoming National Competition Policy Review into the legislation regulating the gaming industry.

It is important to recognise that ‘leakages’ are an inevitable part of an integrated economy. There is leakage and investment. Profits from the gaming industry are distributed to companies and shareholders outside the local region, but these companies have also made significant ‘injections’ through investments in gaming venues in the local region.

The spatial separation of production and consumption is also a feature of an integrated, trading economy. People live in one area, work in another, and spend their income on goods and services produced anywhere in the world. This is reflected in our regional profiles which found that people working in our study regions came from a wide range of municipalities, and people living in our study regions worked in a wide range of municipalities (see Table 5.6). Table 5.6

To constrain people to only spend their money on goods and services produced in their local area would severely reduce material living standards.

Table 5.6: Dandenong – a case study of movements to and from the community to work and live

Origin-Destination Matrix Number of workers			
Work in LGA:	Live in Dandenong	Live in LGA:	Work in Dandenong
Greater Dandenong	16,046	Greater Dandenong	16,046
Monash	6,830	Casey	14,005
Kingston	6,641	Monash	4,428
Melbourne	3,661	Frankston	4,383
Knox	1,715	Kingston	4,048
Casey	1,428	Knox	3,451
Glen Eira	1,247	Cardinia	2,167
Stonnington	975	Mornington Peninsula	2,067
Whitehorse	842	Yarra Ranges	1,536
Port Phillip	838	Whitehorse	1,364
Bayside	723	Glen Eira	1,298
Yarra	646	Bayside	976
Frankston	580	Maroondah	906
Boroondara	578	Boroondara	804
Maroondah	313	Stonnington	681
Other	1,664	Other	3,733
Total	44,727	Total	61,893

Source: Census 1996, Working population profile, Journey-to-Work study areas

If gaming were prohibited or in other ways restricted, it is not clear whether this would lead local residents to spend more or less of their income locally. People might increase expenditure on other forms of entertainment such as films, a share of which is appropriated by foreign film companies and actors. Alternatively, people might spend more of their income on goods, most of which are produced outside the local region, given economies of production.

Reducing the level of gaming taxation or increasing competition in the gaming industry by removing exclusive franchises, would increase the living standards of local players if it reduced the cost of gambling.¹¹ This would probably have positive spin offs for the local economy, as higher disposable income led to more expenditure, including expenditure on goods and services produced in the local region. This positive effect would need to be balanced against the possible

¹¹ The comment that reducing the cost of gambling would increase the living standards of gamblers follows from microeconomic theory and applies to reductions in the price of all goods and services, not just gambling. A reduction in the price of a good or service (all else being equal) increases living standards because it means that a consumer can purchase the same bundle of goods and services as previously, and have money left over. It is this money left over as a result of the price reduction (and the additional goods and services that it could finance) that gives rise to the higher living standards. However, three qualifications to this statement are that:

- we have not considered the impact on living standards of taxes that replace the taxation revenue previously raised by gambling taxation;
- we have assumed that increasing competition in the gaming industry would reduce the cost of gambling; and
- we have assumed that there is sufficient competition in the gaming industry (or regulation of returns to players) such that reductions in the level of taxation are passed on to consumers as lower prices.

adverse effect that lower gaming taxes may have on problem gambling, and the effects on the standard of living of local residents if governments replaced gaming taxes with other taxes, or reduced government programs.

5.3.4.3 *Measuring regional impacts of gaming: alternative perspectives*

Another study commissioned by the Authority (VCGA 2000a) has estimated the economic impact of gaming at the regional level, taking into account the factors discussed above, namely investment in the gaming industry, diversion of spending from other local businesses, gaming taxation and appropriation of profits by TABCORP and Tattersalls.

The study commissioned by the VCGA found that the State-wide economic impact of gaming had been substantially positive, totalling \$3,028 million in net present value terms over five years. However, the impact on individual regions was highly variable (see **Table 5.7**).

Table 5.7: Impact of EGM expenditures on selected regions: results of VCGA commissioned study

Region	NPV over five years for region (1998-99 \$m)	NPV per household over five years (\$1998-99)
Moreland	24.2	480.7
Mildura	10.8	640.0
Geelong	58.6	888.6
Wellington	14.6	1004.6
Dandenong	5.7	134.0
Maribyrnong	-35.0	-1529.0
Stonnington	163.4	4317.6
Boroondara	362.1	6460.1
Average Victoria	NA	1945.9

Source: VCGA 2000, p. 79-82

A number of factors drove the differences in results between regions. The first was differences in household saving ratios and the level of indebtedness between regions. Regions where households had high savings ratios had a greater capacity to finance gambling from savings, rather than financing it by reduced expenditure on other goods and services. Therefore in these regions, as gambling was financed by savings, it had a stimulatory impact on the regional economy.

Another factor was differences in the composition of household spending between regions, and differences in the composition of the local economy. For example, gambling had a positive economic effect in rural regions, where it led to the diversion of expenditure from goods and services produced outside the region, to services produced within the region.

A third factor was differences in the level of share ownership between regions. Regions where a greater proportion of households owned shares (eg Stonnington and Boroondara) benefited from gaming because of the distribution of dividends by gaming operators.

However, it is important to recognise that the estimates of economic benefits derived in the study commissioned by the VCGA are sensitive to the underlying economic assumptions, and that different assumptions may lead to very different results. For example, many economists would disagree that lower levels of household savings would have a stimulatory impact on the economy. Similarly, it is likely that investors would have invested in shares even if gaming had not been liberalised, and therefore the income from shares cannot be considered as totally new or additional benefits of gaming.

Applying a different set of assumptions would be likely to lead to very different results. For example, the Productivity Commission assumed that the main benefit of gambling was the benefit (or consumer surplus) that consumers derived from gambling over alternative forms of recreation or uses of their money, and the main cost was problem gambling.¹² While the Commission did not estimate net benefits at a regional level, applying their methodology, net benefits would be greatest in regions where there were high levels of gambling (and therefore high consumer benefits) and low levels of problem gambling (and therefore low costs).

The differences in approach between the VCGA commissioned study and the Productivity Commission study illustrates the sensitivity of results to underlying assumptions, and the importance of getting agreement on methodology prior to measuring the impact of gaming at the regional level.

5.3.4.4 Conclusions

Given current levels of gambling taxation and returns to Tattersalls and TABCORP, should local councils attempt to restrict gambling as a means of boosting their local economies? In our view, the answer is no. Firstly, it is not clear that such a policy would lead to greater consumer expenditure on goods and services produced in the local region. However it is clear that such a policy could inconvenience consumers if it affected their preferred venue and preferred attendance time, and could inhibit consumers from using their money in such a way that gives them greatest pleasure. Local residents are choosing to spend their money at (mainly) local gaming venues, despite high levels of taxation and the returns to the exclusive suppliers TABCORP and Tattersalls. Even though State Government policies increase the cost of gaming,

¹² Differences in the results obtained by the Productivity Commission and the VCGA study largely reflect differences in underlying macroeconomic assumptions. The VCGA study adopted a more Keynesian view of the economy, where changes in the level of demand (financed by reduced savings) could have an expansionary effect on the economy. The Productivity Commission's approach reflected the view that the level of economic activity is largely driven by supply side factors such as productivity, and therefore in the absence of increases in productivity, an expansion in one industry (eg gaming) must draw resources from other industries.

local residents still choose to participate in gaming over alternative uses of their money. Therefore, a policy by local governments to limit gaming purely for economic reasons would not constitute good economic policy. Whether there is a case for limiting gaming for social reasons is explored in the next section.

To summarise, our study has found:

- significant investment in clubs and hotels with gaming machines since 1992:
 - in most cases owners reported that the introduction of gaming machines had been a key factor underpinning the viability of these investments;
 - most people game locally, and the availability of gaming is not a significant 'drawcard' for tourism;
- it is difficult to disentangle the effects of the expansion in gaming venues on local businesses from other economic factors affecting businesses:
 - however inevitably, growth in consumer expenditure on gambling and investments in gambling venues have drawn resources away from other industries, reducing the size of these industries — relative to what they would have been if the gaming industry did not exist;
- in KPMG Consulting's view, the impact of expansion in gaming venues on other businesses should not of itself be necessarily an issue of concern for government policy:
 - change is an integral feature of any dynamic economy and generally governments leave businesses to respond to the changing expenditure patterns of consumers, rather than intervening to protect individual businesses from these effects;
- gambling taxes and returns to TABCORP and Tattersalls represent a leakage from local economies:
 - such leakages and injections are an integral part of all local economies;
- if local governments were to restrict gaming, there is no guarantee that local residents would spend more money on local goods and services:
 - most other goods and services are produced out of the local area; and
 - such a policy may prevent local residents from spending their money in ways that they determine.

5.4 Problem gambling

5.4.1 Incidence of problem gambling in the six study regions

Our consultations revealed that problem gambling was a serious concern for all stakeholders — local residents, local councils, welfare agencies, gaming venue operators and local businesses. In all six regions, there were some people who had excluded themselves from gaming venues as a means of controlling their gambling. In all jurisdictions, social welfare and financial counselling organisations reported a rise in financial problems associated with gambling since the liberalisation of gaming machines in 1992 and the opening of the casino in 1994. The number of people seeking assistance with their gambling problems from the counselling agency Break-Even in each of the six study regions is shown in Table 5.8.

Table 5.8: Problem gamblers: cases registered and client contacts, 1996-97 and 1997-98

Region	Year			
	1996-97		1997-98	
	Cases registered	Client contacts	Cases registered	Client contacts
Moreland	228	2048	537	1639
Mildura	50	315	83	385
Geelong	105	710	153	623
Wellington	125	757	180	870
Dandenong	303	2654	546	3212
Maribyrnong	142	983	279	1213

In addition, social welfare and financial counselling agencies commented on a change in the sort of people seeking assistance with gambling problems. Previously gambling had largely been a problem for men with horse racing. However, with the introduction of gaming machines, agencies commented that there had been an increase in the number of women seeking assistance with gambling problems. A common view was that women felt comfortable in gaming venues, whereas prior to the introduction of gaming machines, licensed premises had been less welcoming to women. While gaming had expanded social and entertainment options for women, the flip side was that it had also exposed them to the risk of becoming problem gamblers.

Along similar lines, the Mildura Aboriginal Co-operative said that the liberalisation of gaming had led to an increase in problem gambling in the local Aboriginal community. The Co-operative is a focal point for Aboriginal people living in the region, and is located three doors from the Mildura RSL which has gaming machines. Members of the Co-operative said that the RSL was a place where Aboriginal people felt they could be part of the broader community — a positive development — but this had led to greater exposure to poker machines and problem gambling.

We investigated the social consequences of gambling in our regional survey (see Table 5.9). The survey revealed widespread concern with gambling, with 82 per cent of respondents in our six regions agreeing that gaming is a serious social problem — similar to the state average. We also found that problem gambling had touched the lives of a minority — but nevertheless significant — percentage of the community in the six regions. Overall 11 per cent of all survey respondents reported that they or a member of their family had experienced difficulties with excessive gambling, usually in the last six months. This was higher than the state average of 7 per cent.

We also asked more detailed questions about problem gambling to people who replied that they had participated in gambling in the last six months. This was about half of the sample. Overall, we found that most gamblers were not at risk of problem gambling, as measured by their responses to the 23 questions that make up the South Oaks Gambling Screen (SOGS).¹³ Our survey found that 98 per cent of all respondents (including non-gamblers) were not at risk, which is comparable to the state-wide average of 1.5 per cent in September 1998.¹⁴ This was consistent with our findings in section 5.2.4, that most people participate in gaming for social and entertainment reasons, rather than as a result of a gambling problem. Nevertheless, in each of our six regions between 1 and 3 per cent of adults have a SOGS score greater than 4 (see Table 5.9), placing them at some risk of a gambling problem.

The 23 questions that make up the SOGS probe behaviour that ranges from mild problems with gambling to major problems with gambling. Not surprisingly, our survey revealed that the more severe the problem, the less the number of respondents reporting this behaviour. For example, 20 per cent of gamblers in our six regions reported that they had gambled more than they intended to, and 16 per cent of gamblers had had money arguments centred on gambling in the last six months. However, only 2.5 per cent of gamblers had borrowed money to gamble or pay off gambling debts, and less than one per cent had sold property to finance gambling. Overall, only 1 per cent of gamblers considered that they had a problem with gambling or that their gambling problem was out of control. However care should be taken in drawing conclusions from such questions given that some people may under-report their gambling problem.

Overall the incidence of problem gambling or problems associated with gambling was fairly uniform across the regions. This result was surprising given the variation in gaming expenditure and EGM density between the regions, and the Productivity Commission's finding that

¹³ Respondents are not considered at risk of problem gambling if they answer positively to four or less of the 23 questions that make up the South Oaks Gambling Screen. Respondents who answer positively to 5-6 questions have a one in five risk of a gambling problem. Respondents who answer positively to 7-9 questions have a one in two risk, and respondents who answer positively to 10 or more questions have a one in one risk of a gambling problem.

¹⁴ The *Sixth Survey of Community Gambling Patterns and Perceptions* (April 1999) commissioned by the VCGA and conducted by Roy Morgan Research in September 1998 found that 98.5 per cent of the Victorian population are not at risk of problem gambling. The seventh survey in this series, released in April 2000 and conducted in October 1999, found that 99.2 per cent of the Victorian population are not at risk of problem gambling. This compares with the results of the Productivity Commission's National Gambling Survey conducted in 1999 which found that 98.0 per cent of the Victorian population are not at risk, and 97.7 per cent of the Australian population are not at risk.

expenditure by problem gamblers makes up about one-third of the gambling industries' market (PC 1999, p. 2).

Given the Commission's finding, we would have expected there to be significant variation in the percentage of problem gamblers in each region, given the variations in EGM expenditure and density. A possible reason for this apparent discrepancy is the size and focus of the KPMG survey. The KPMG survey investigated attitudes to gaming, and gaming behaviour across all of the population in each of the six regions, rather than focusing on the attitudes and behaviour of problem gamblers. Given that problem gamblers make up about 2 per cent of the population or only 20 respondents in a survey of 1,000 persons, care should be exercised in drawing conclusions from our survey.

An alternative explanation for why the KPMG survey found a fairly uniform incidence of problem gambling across the regions despite differences in EGM expenditure and density, is that the bulk of gaming expenditure is by recreational gamers, not problem gamblers. It is possible that the differences in gaming expenditure between the regions reflect differences in the number and expenditure of recreational gamers, not differences in the number of problem gamblers.

While overall the KPMG survey found that the incidence of problem gambling was fairly uniform across the regions, the one exception was Maribyrnong. Gamblers in Maribyrnong were more likely to report problems with gambling compared to the other regions. This is significant because Maribyrnong has the highest EGM expenditure per adult and highest EGM density of our six regions. Examples of the higher incidence of gambling related problems in Maribyrnong include:

- 3 per cent of Maribyrnong residents have a SOGS score greater than 4;
 - compared to 2 cent cent for the average across the regions;
- 17 per cent of Maribyrnong residents reported that they or a member of their family had experienced difficulties with excessive gambling;
 - compared to 11 per cent for the average across the regions; and
- 35 per cent of Maribyrnong gamblers reported that during the last six months they had gambled more than they intended to;
 - compared to 20 per cent for the average across the regions.

A surprising feature of our survey was the finding that there was no correlation between people's SOGS score and their happiness with life. That is, we did not find that people with higher SOGS scores were less likely to be happy with life than people with low SOGS scores. We found that happiness with life was associated with having a full social life, a good family life, not being lonely or bored and experiencing low stress — a low SOGS score was not a factor. Higher SOGS scores were associated with frequently participating in gaming (especially pokies and horse betting), admitting experiencing gambling problems, and being a spender rather than a saver.

This result was surprising given the feedback we gained from our consultations with social welfare, financial counselling and Breakeven agencies about the human costs of problem

gambling. It may be that the small number of problem gamblers in our survey means that our sample is too small to put much weight on these results. More reliable results on the relationship between SOGS score and personal happiness may be obtained through a survey that had a larger sample of high SOGS individuals.

To summarise, our study has found:

- widespread community concern about gambling:
 - with 82 per cent of respondents agreeing that gaming is a serious social problem; and
 - 11 per cent of adults saying that they or a member of their family had experienced difficulties with excessive gambling;
- however, on the basis of the responses to our survey, the vast majority of residents (98 per cent) are at no risk of problem gambling;
- the small incidence of problem gambling is fairly uniform across the regions, despite large differences in expenditure on gaming and EGM density:
 - this suggests that the differences in expenditure between the regions may relate more to differences in recreational gambling than problem gambling;
 - alternatively it may be that our survey was too small to pick up differences between regions in the incidence of problem gambling;
 - in this context, it should be noted that the Productivity Commission's gambling survey found that expenditure by problem gamblers made up about one-third of the gambling industries' market;
- the exception is Maribyrnong which has a higher incidence of problem gambling:
 - Maribyrnong also has the highest EGM density of our regions and the highest expenditure on gaming per adult;
 - nevertheless, 97 per cent of Maribyrnong adults on the basis of the responses to our survey are at no risk of problem gambling;
- surprisingly we found no correlation between people's SOGS score and their personal happiness:
 - however care should be taken in interpreting this, given the small number of problem gamblers in our survey.

Table 5.9: Problem gambling

	Average for 6 regions	State-wide average ¹	Moreland	Mildura	Geelong	Wellington	Dandenong	Maribyrnong
Gaming is a serious social problem	82	80	87	72 ²	81	87 ²	89	84
Have you or any of your family ever experienced difficulties with excessive gambling?	11	7	13	7.8	5.4 ²	7.8	11	17 ²
If yes, was that during the last six months?	70	43	59	85	56	85	74	66
Have you participated in any gambling activities in the last 6 months?	51	76 ³	51	56	53	45	53	50
Did you gamble more than you intended to? ⁴	20	NA	19	13 ²	16	16	19	35 ²
Have you felt guilty about the way you gamble? ⁴	13	NA	9.9	11	14	7 ²	15	19
Have money arguments ever centred on your gambling? ⁴	16	NA	16.7	7.7	13	6.7	22	29
Have you ever borrowed money to gamble or pay off gambling debts? ⁴	2.5	NA	0.9	3.5	1.8	1.0	1.9	5.7
Have you borrowed money to gamble from selling personal or company property? ⁴	0.5	NA	0	1.8	0.9	0	0	0

	Average for 6 regions	State-wide average ¹	Moreland	Mildura	Geelong	Wellington	Dandenong	Maribyrnong
Do you feel you have had a problem with gambling or that your gambling was out of control? ⁴	1.1	NA	1.1 ²	1.1	1.1	1.1	1.1	1.2 ²
SOGS score – no risk	98	98.5 ⁵	98	99	97	99 ²	98	97 ²
EGMs/'000 adults	10.3	8.6	7.3	8.5	9.9	11.0	12.1	15.5
EGM expenditure/adult	\$677	\$562	\$510	\$501	\$598	\$512	\$868	\$1,079

NA: Not available. This question was either not asked, not asked in a similar way, or not reported in the Patterns survey.

- 1 The state-wide average is from the Roy Morgan 'Patterns' survey.
- 2 The result for this region is statistically significantly different from the average of the six regions.
- 3 The level of participation in gambling in the six regions is not comparable with the State average. This is because the KPMG regional survey asked people whether they had participated in gambling in the last six months, whereas the Roy Morgan state-wide survey asked people whether they had participated in gambling in the last 12 months.
- 4 The question related to behaviour in the last six months.
- 5 The *Sixth Survey of Community Gambling Patterns and Perceptions* (April 1999) commissioned by the VCGA and conducted by Roy Morgan Research found that 98.5 per cent of the Victorian population are not at risk of problem gambling. The seventh survey in this series, released in April 2000 and conducted in October 1999, found that 99.2 per cent of the Victorian population are not at risk of problem gambling. This compares with the results of the Productivity Commission's National Gambling Survey conducted in 1999 which found that 98.0 per cent of the Victorian population are not at risk, and 97.7 per cent of the Australian population are not at risk.

Source: KPMG longitudinal community impact survey, and Roy Morgan Research "Sixth Survey of Community Gambling Patterns and Perceptions (April 1999).

5.4.2 Policy implications

Our study has found widespread concern with the adverse social consequences of gambling, and evidence that a small, but nevertheless significant, percentage of gamblers have problems with gambling.¹⁵ In economic terms, problem gambling is a negative externality associated with the gaming industry. That is, the activity of gaming, while providing recreational opportunities for the majority of the population, has negative effects for the minority of people who have difficulties controlling their gambling, and for their families. These negative effects provide an economic justification for government intervention in the gaming industry to reduce the incidence of problem gambling. The widespread community concern about the social consequences of gambling provides an additional social reason for governments to address the problem.

Local governments, community groups, political parties and the Productivity Commission have proposed a range of policies to address problem gambling. These policies include:

- state-wide caps on the number of gaming machines;
- regional caps on the number of gaming machines;
- restrictions on the operating hours of gaming venues, including limiting 24 hour venues; and
- changes to the configuration of gaming machines such as forced breaks in play to deter compulsive gaming.

Given the new state government's policy that local governments should have a greater say in policy towards the gaming industry in their municipality, these policy options raise questions for both local and state governments. In this section, we look at what light our study sheds on these policy questions.

5.4.2.1 *Problem gambling and gaming machine supply*

A key policy question is whether gaming machine supply contributes to problem gambling. This is relevant because it sheds light on whether policies to restrict gaming machines would curb problem gambling.

We used an econometric model to explore the relationship between gaming machine supply and expenditure on gaming (see Supporting Paper No. 2). This model found that 83 per cent of the variation in per capita gaming expenditure between regions was explained by differences in the number of gaming machines and the number of pubs and clubs with gaming machines. We found that a 10 per cent increase in EGM numbers gave rise to an 8 per cent increase in gaming expenditure, and the opening of a new pokies club or pub (holding the number of gaming

¹⁵ We have assumed that when people agreed that 'gaming is a serious social problem', they were principally concerned with the social problem of problem gambling. It is possible that respondents were also concerned about other social problems associated with gambling, other than problem gambling. For example, people may have considered that changes in recreational patterns are a social problem.

machines in the region constant) led to a \$0.50-0.56 increase in quarterly per capita gaming expenditure. This result was lower than the Productivity Commission's draft report finding that a 10 per cent increase in EGM numbers gave rise to a 15 per cent increase in per capita gaming expenditure.¹⁶

We then asked the question: "Are gaming machines and venues driving gaming expenditure or is gaming expenditure driving the number of machines and venues?" In other words, what is the direction of causality? Our tests indicated that it worked both ways. Although gaming expenditure is primarily affected by EGM numbers and venues, there is also evidence of a two way flow, with the number of EGMs being influenced, in turn, by the amount of gaming activity.

In most markets, supply follows demand. For example, a rise in demand for internet access leads to an increase in the number and size of internet service providers. But a rise in the number of internet service providers does not, of itself, lead more people to want internet access. However, our results for the gaming industry indicated that supply partly drove demand — the opposite of the internet example and normal market circumstances.

As well as going against the norm, our results for the gaming industry also appear counter-intuitive. They would imply that placing poker machines in the pubs and clubs in a region would lift residents' expenditure on gaming machines in that region. While we could expect some relationship here, in that increased availability of poker machines could over time, change people's cultural perceptions of participating in gaming, such that recreation patterns changed and supply drove demand, we wouldn't expect accessibility to be the principal factor driving expenditure in the long term.

Further econometric analysis also indicated that there was more to the story. When we looked at the relationship between gaming expenditure and gaming supply at a regional level, we found that regions were different. That is, the effect of a given number of gaming machines and gaming venues on gaming expenditure in one region, was statistically significantly different from the effect in another region. For example, our model indicated that placing 100 gaming machines in 5 gaming venues would lead to a given level of gaming expenditure in say, Wellington, but a much larger level of expenditure in Maribyrnong. This result would suggest that something additional to gaming supply was driving gaming expenditure.

While our econometric work indicated that gaming machines and the number of gaming venues was driving gaming expenditure, we consider there are at least two alternative explanations for these results. First, it is possible that our results are simply reflecting that TABCORP, Tattersalls and venue operators know where to place the machines to maximise gaming expenditure. There may be a strong positive relationship between machines, venues and expenditure simply because the operators are good at predicting where gaming expenditure will be. For example, the operators may know where people's recreation preferences lend themselves to gaming. Our model did not include these less tangible 'taste' parameters. Under this alternative hypothesis, gaming expenditure is driving the location of machines, not vice versa.

¹⁶ In the draft report, the Commission explored the relationship between gaming expenditure and number of gaming venues. However, this econometric analysis was not repeated in the final report. For this reason, KPMG's results have been compared with the Productivity Commission's Draft Report findings.

Another reason why our model might be falsely indicating that supply is driving expenditure is because of the 'catch-up' associated with the introduction of machines in 1992. It may be that there was strong underlying demand for gaming, and that it has taken time for gaming venue operators to install machines and update venues to cater for this demand. As supply expands to meet demand, gaming expenditure expands, because previously expenditure was supply constrained. In future, it may be possible to test this hypothesis, once adjustments have occurred and growth of the industry stabilises.

Finally it is important to note that our model investigated factors determining gaming expenditure, not gaming expenditure by problem gamblers. This was necessary because data on gaming expenditure by problem gamblers was not available at the time we undertook our econometric analysis.¹⁷ A knowledge of the determinants of problem gambling expenditure could help guide policies to reduce the incidence of problem gambling. However, given the Productivity Commission's finding that expenditure by problem gamblers makes up about one-third of total gambling expenditure, models explaining gaming expenditure may provide some insights into determinants of problem gambling.

In summary, we are cautious about the findings of our econometric work indicating a strong causal link between gaming supply and gaming expenditure. This result is somewhat at odds with our 'a priori' economic expectations, and fails to fully explain differences in gaming expenditure between regions. In addition, there are other plausible explanations consistent with gaming demand driving gaming supply that may explain our results.

5.4.2.2 Caps on machines per venue

We also investigated whether there were any benefits in capping the number of machines at venues. Our econometrics indicated that for a given number of machines (eg a state-wide cap), gaming expenditure increased the greater the number of gaming venues. That is, more venues with less machines per venue led to higher gaming expenditure than less venues with larger numbers of machines per venue. This is consistent with the findings of our survey that most people game locally, and therefore accessibility is important to the decision to game.

This finding also suggests that the government's policy of restricting the number of machines per venue, in combination with a policy to cap the total number of machines, may actually lead to higher gaming expenditure than if numbers of machines per venue were deregulated. This result appears surprising, because if gaming expenditure is higher if machines are spread around a large number of venues, then why would TABCORP and Tattersalls want to put the maximum number of machines in many venues? A possible explanation is that while gaming machine expenditure may be higher if machines are spread around more venues, gaming machine profitability might be lower because of cost efficiencies in having large gaming venues.

It should be noted that our finding that for a given number of machines, more venues means more expenditure, is at odds with the Productivity Commission's work.¹⁸ The Commission found that a smaller number of large venues leads to higher gaming expenditure. The differences in the

¹⁷ The Productivity Commission has since done original survey work on expenditure by problem gamblers.

¹⁸ In the draft report, the Commission explored the relationship between gaming expenditure and number of gaming venues. However, this econometric analysis was not repeated in the final report.

findings of the two models may be explained by differences in model specification and the fact that the Commission's work was based on Queensland data, whereas ours focussed on Victoria. Further useful econometric work on the link between numbers of venues and gaming expenditure was not possible in this study.

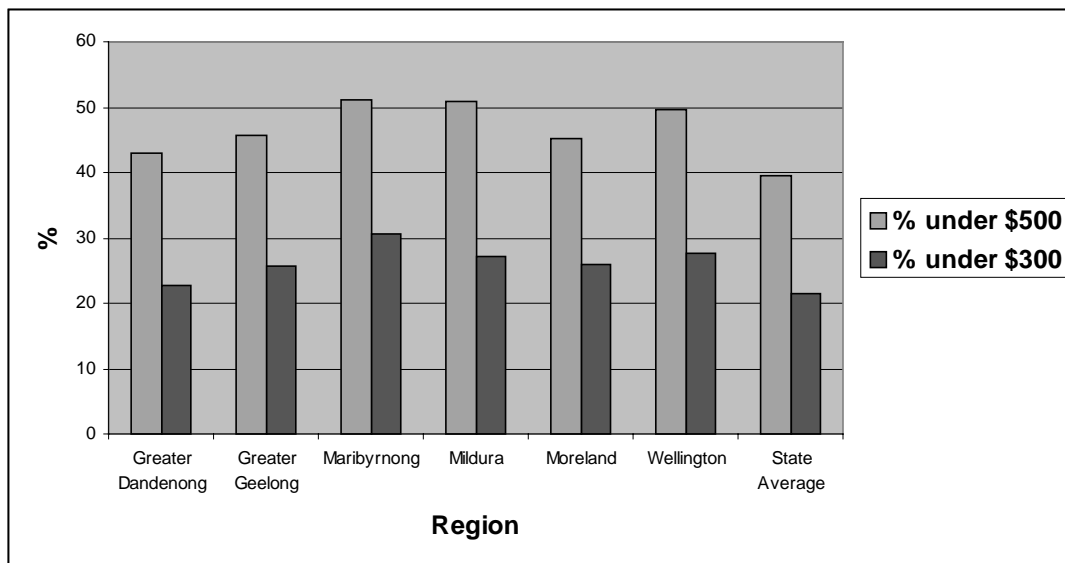
During our consultations, some counsellors and people who had difficulty controlling their gambling commented that it was difficult to avoid gambling. They said that to control their gambling they needed to avoid gaming establishments, but this was difficult given the prevalence of gaming establishments, and was socially isolating. This issue was raised in Mildura, where a high proportion of licensed venues have poker machines, and at our public meeting in Moreland. Some pockets of Moreland such as Sydney Road Brunswick have a high concentration of gaming venues. These comments suggest that there may be some benefits for problem gamblers in limiting the number of gaming venues (but not necessarily the number of machines per venue), but such a policy would need to be assessed further for its anti-competitive effects.

5.4.2.3 Placement of gaming machines and social disadvantage

Local councils have expressed concern that gaming machine operators are targeting areas of social disadvantage. This is reflected in the evidence provided by the City of Maribyrnong to the Productivity Commission's inquiry:

“There are very strong correlations between the data sets for both the proportion of low income earners, and unemployment rates, against EGM density by Local Government Area in suburban Melbourne.” (City of Maribyrnong, p. 2)

Overall the six regions in our study had lower income levels than the state average (see Figure 5.4). Maribyrnong had the lowest income level and also the highest level of gaming expenditure per adult. The next lowest income regions were the rural cities of Mildura and Wellington, which have lower levels of gaming expenditure per adult than the State average. Dandenong, which is the other region in our study with high levels of gaming machines and gaming expenditure, has the highest income of our study regions (but this is still below the state average). Therefore casual observation suggests that in our six regions there is no clear relationship between income levels and gaming expenditure or machine density.

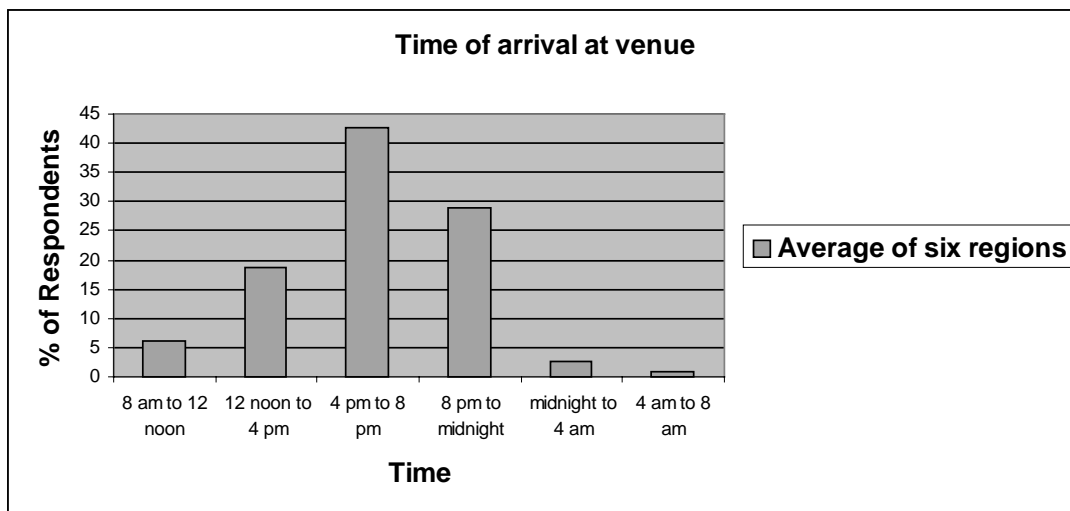
Figure 5.4: Proportion of persons in low income brackets by region, 1996

We tested this formally in our econometric model which investigated whether the unemployment rate in a region and the number of social security beneficiaries was a determinant of gaming expenditure. Overall, we found that the unemployment rate in a region had a small impact on gaming expenditure. Differences in unemployment explained less than 5 per cent of the regional variation in gaming expenditure. In addition, the direction of the effect was negative. That is, the higher the level of unemployment and pension and benefit dependence, the lower the amount of gaming expenditure.

While this contrasts with generally held views, it is consistent with the findings of our consumer survey, that most people game for social and recreational reasons. People on low incomes (eg those not working), have less money to spend on recreation, and this may be reflected in lower gaming expenditure.

5.4.2.4 Temporal pattern of gaming

In considering the effectiveness of policies to reduce gaming supply, it is important to consider evidence on the timing of play. This is because caps — whether they be State, regional or venue — will principally affect play at the peak times, when machines are fully utilised. Our consultations and consumer survey revealed that the utilisation of gaming machines is highly variable over the day and over the week. Venue operators reported that their busiest times were Friday and Saturday nights, in common with the busy times for other entertainment options such as restaurants and films. Our survey found that the most popular time to arrive at a gaming venue was between 4pm and 8pm, with other times being significantly quieter (see Figure 5.5).

Figure 5.5: Timing of arrival at gaming venues

5.4.2.5 Local pattern of play

In considering whether local governments should adopt policies to restrict gaming in their municipality to assist local residents with gambling problems, it is relevant to consider where people game. Policies to restrict supply at the local level would be ineffective if it meant that problem gamblers simply travelled out of the area to participate in gaming. Similarly, policies to change the configuration of machines to reduce the compulsiveness of play may lead people to travel out of the area to play machines without such configurations.

On this issue, our study found that people game locally. On average people travel only 2.5 kilometres to play pokies and are much more likely to play pokies at a local pub or club than at Crown Casino. When we asked people why they frequented a particular venue, the most common response was “because it is easy to get to”. Sixty-eight per cent of gamers selected a venue because of accessibility compared to 30-31 per cent of gamers who selected a venue on the basis of it being “a good place to gamble” or “because it has the sort of pokies I like”. This underlines the importance of accessibility in gamers’ selection of venues.

While it is impossible to predict how gamers would respond to policies implemented in one region but not another, our survey findings suggest that given the importance of accessibility in venue selection, people may continue to game locally, weighing up the benefits of accessibility against the costs, such as the inconvenience of playing machines which were programmed to force breaks in play.

There is also the question of whether people would switch to other forms of gambling (eg horse racing) if gaming was restricted in some way. Such a response would undermine measures implemented in the gaming industry to curb problem gambling. Overall, the evidence collected in this and other studies indicates that gamblers do not see different forms of gambling as being interchangeable. This includes:

- evidence presented in chapter three that total expenditure on gambling in Victoria has increased by three-fold since the liberalisation of gaming in 1992:
 - new forms of gambling have led to new gambling expenditure not just a substitution between different gambling modes;
- anecdotal evidence from BreakEven and financial counselling agencies that new forms of gambling have led to new sorts of problem gamblers:
 - previously, problem gamblers were largely men who bet on races. Now problem gambling includes women who participate in gaming.

This evidence suggests that measures implemented in the gaming industry to curb problem gambling could be effective, even if such measures were not implemented in other gambling industries.

5.4.2.6 *Risks associated with restrictions on gaming machine supply*

Finally, it is important to consider the impact on industry competition and development of policies designed to combat problem gambling. This issue raises questions well beyond the scope of this study. However, we comment here on one issue that arose during our consultations, namely that State or regional caps may lead to significant risks for less financially sophisticated clubs.

Our consultations revealed that gaming had increased the financial stakes for clubs. Prior to gaming, many clubs were relatively small operations with small investments. Traditionally clubs elect their boards, which does not always ensure extensive management expertise. During our consultations, we spoke to one small country club that was considering installing gaming machines, subject to a \$0.5 million refurbishment of premises required by the gaming machine operator. For this small club, such an investment would take many years to pay off. However the proposed contract for the gaming machines was for only four years.

If State or regional caps were introduced, such that gaming machines became scarce, it is likely that TABCORP and Tattersalls would withdraw machines from venues with lower turnover. This could create financial difficulties for clubs that had undertaken refurbishments without the security of contracts for machines for the pay-back period of the refurbishments.

5.4.2.7 *Implications of KPMG Consulting's findings for policies to constrain EGM supply*

Our survey, econometrics and consultations provide some information to inform policy making to curb problem gambling. Firstly, they indicate that policies to cap the number of machines either at the state, regional or venue level would lead to congestion at gaming venues during peak times (eg Friday and Saturday night). However, given the uneven utilisation of machines over the day and over the week, it is not clear that this would curb problem gambling. Firstly, it is not clear that problem gamblers gamble at these peak times. The Productivity Commission found that problem gamblers were regular gamblers —usually gambling a number of times a week, not just Friday or Saturday nights — and there was some evidence that they preferred less congested

times to gamble to avoid scrutiny. Therefore (State, regional or venue) caps and congestion at peak times may not be effective in curbing gambling by problem gamblers. Those problem gamblers who game at peak times may simply switch to accessing the machines at less congested times.

However, caps and congestion would adversely affect recreational gamblers, who may decide to seek alternative forms of recreation rather than over-crowded pokie venues. Caps would lead to a reduction in welfare of recreational gamblers, and may have an uncertain, longer term effect in reducing the incidence of problem gambling by reducing the number of people participating in gambling.

Nevertheless, governments may decide to impose caps for other social or economic policy reasons. For example, it is likely that caps would have an impact on the level of expenditure on EGMs, by limiting expenditure at peak periods. However, it would be important for governments to have a clear objective as to why they were seeking to reduce EGM expenditure across the board, as distinct from EGM expenditure by problem gamblers.

The Productivity Commission has proposed alternative policies designed to target problem gambling while minimising inconvenience to the 96 per cent of gamblers (98.5 per cent of the whole population) who do not have any problems with their gambling. These policies seek to address the negative externality associated with gaming — namely problem gambling — while maintaining the community benefit flowing from recreational gaming. They include:

- providing gamers with statements of expenditure on gaming, using the information technology in gaming machines;
- curtailing advertising and promotion of gambling or at least including ‘wealth warnings’ (eg publicising the risks and consequences of excessive gambling);
- restricting the location of automatic teller machines at venues or imposing lower withdrawal limits; and
- modifying game features and design to temper the hazards of gaming. This includes pre-commitment strategies, curtailing bill acceptors on machines, limiting spending rates and forcing breaks in play.

These policies are largely untested, and the Commission has proposed conducting pilot programs in particular areas to monitor their effectiveness over time. Our findings that people prefer to game locally indicates that pilot programs may be able to be implemented at the local level without being undermined by people travelling outside of the region to participate in gaming. If such an approach were to be trialed, one option would be to use a longitudinal community impact study such as this, to provide insights into the effectiveness of these strategies in combating problem gambling over time.

A longitudinal community impact study could also be used to trial the effectiveness of measures designed to increase consumer information about gaming. The Productivity Commission has postulated that in addition to the externality of problem gambling, another form of market failure in the gambling industry is information asymmetry. That is, consumers are not aware of the odds of winning jackpots, the expected loss from gaming, or the way in which odds work. The current

lack of information could be leading to sub-optimal outcomes, such as people gaming more than they would if they were more informed. A longitudinal community impact study could be used to monitor how gaming patterns changed in response to the provision of more information at venues in a particular municipality.

Our econometrics and consultations also cast doubt on the effectiveness of policies that cap the number of gaming machines per venue, as a tool for reducing total gaming expenditure or the incidence of problem gambling. However, we recognise that caps on the number of machines per venue may be designed to address other policy objectives such as spreading the wealth created by poker machines across more pubs and clubs. We found that a given number of machines spread across a smaller number of venues (more machines per venue) led to lower levels of gaming expenditure. It is not clear how caps on the number of machines per venue curb problem gambling, and there is evidence that they may increase gambling expenditure and the number of gambling venues, making it difficult for problem gamblers to avoid gaming venues. In addition, these policies are likely to curb competition in the gaming industry by preventing large, successful venues from expanding and attracting a larger share of the recreational gaming dollar. These likely adverse effects would need to be compared against the effectiveness of these policies in achieving other government objectives.

To summarise, our study has found:

- the number of gaming machines and gaming venues appears to influence the level of gaming expenditure:
 - however, these results are preliminary, and could also be explained by behaviour consistent with demand driving supply;
 - evidence of differences between regions in the relationship between gaming machines, venues and the level of gaming expenditure, indicates that it is not a simple case of supply driving demand;
- caps on the number of gaming machines per venue, in the context of overall regional or state caps on gaming machine numbers, appear to lead to possibly higher gaming expenditure:
 - casting doubt on the effectiveness of venue caps as a tool for curbing gaming expenditure and problem gambling;
 - however, there may be other objectives for such policies, such as spreading the wealth created by poker machines across more pubs and clubs;
- our econometrics found no evidence that higher unemployment led to higher gaming expenditure:
 - consistent with the view that most gaming is recreational, and the unemployed have less money to spend on recreation, including gaming;
- the utilisation of gaming machines varies substantially over the day and over the week:
 - in KPMG Consulting's view, this indicates that caps will create congestion at peak times, impacting on recreational gamers, but not reduce the accessibility of machines at most other times;
- overall, KPMG Consulting concludes that state-wide, regional and venue caps are a blunt instrument for addressing problem gambling, and impose inconvenience on recreational gamers:
 - more targeted policies include changes to the design of machines to reduce the compulsiveness of play — although these proposals are largely untested;
 - nevertheless, governments may decide to impose caps for other social or economic policy reasons, and it will be important to clearly articulate these other objectives;
- KPMG Consulting's findings about the localised nature of gaming indicate that a longitudinal community impact study could be used to trial the effectiveness of policies to reduce problem gambling:
 - the local nature of gaming indicates that a localised trial would be feasible.

5.4.3 Conclusions

A number of factors contribute to gambling being a volatile policy cocktail. First among these is the widespread community concern about the social impact of gambling — over 80 per cent of people agree that gambling has serious social consequences. Despite this widespread concern, little is known about the behaviour of problem gamblers and therefore there is little information on which to base policies designed to curb problem gambling. At the same time, about three-quarters of the state's population participates in gambling —almost all for social and recreational reasons — indicating that poorly targeted policies could reduce the enjoyment that the vast majority of gamblers derive from gambling.

The widespread concern about problem gambling leads to political pressure for governments at all levels to be seen to be doing something. In an environment in which little is known about the characteristics of problem gambling, there is a considerable danger that this will lead to policy interventions that fail to reduce problem gambling, but curb the choice of some people to engage in recreational gambling. This underlines the importance of research into problem gambling, to provide information to assist the design of government policies and programs to curtail problem gambling.

References

City of Greater Dandenong 1998, "Submission from City of Greater Dandenong to the Inquiry into Australia's Gambling Industries conducted by the Productivity Commission", submission no. 82, November.

Department of Treasury and Finance (Victoria) 2000, "Responsible Gaming Consultation Paper", February.

Maribyrnong City Council 1999, "Submission by Maribyrnong City Council to the Productivity Commission Inquiry into Australia's Gambling Industries", submission no. 39.

Moreland City Council 1999, "Submission to the Productivity Commission – Inquiry into Australia's Gambling", submission no. 79.

Productivity Commission 1999 "Australia's Gambling Industries" Report No. 10, 26 November.

Victorian Casino and Gaming Authority 1997a "Impact of Gaming Venues on Inner City Municipalities" December.

Victorian Casino and Gaming Authority 1997b "Impact of Electronic Gaming Machines on Small Rural Communities", December.

Victorian Casino and Gaming Authority 1997c "Social and Economic Effects of Electronic Gaming Machines on Non-Metropolitan Communities", December.

Victorian Casino and Gaming Authority 1997d "The Impact of the Expansion of Gaming on the Victorian Retail Sector", March.

Victorian Casino and Gaming Authority 1999a "Sixth Survey of Community Gambling Patterns and Perceptions", conducted by Roy Morgan Research, April.

Victorian Casino and Gaming Authority 1999b "Hotel and Club Industry Gaming Impact Study", December.

Victorian Casino and Gaming Authority 2000a "The Economic Impact of Gambling", March.

Victorian Casino and Gaming Authority 2000b "The Impact of the Expansion of Gaming on the Tourism, Entertainment and Leisure Industries", March.

Victorian Local Governance Association 1999, "Lucky, Local and Losers: Local governments' efforts to control the pokies", November.

Victorian Casino and Gaming Authority

Report of the 1999
Longitudinal Community
Impact Study
Supporting Paper No. 1: Survey of
Community Attitudes

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1 Executive Summary

1.1 Overview

In October 1999, a major quantitative survey of 1000 residents in the Local Government Areas of Dandenong, Geelong, Maribyrnong, Mildura, Moreland and Wellington (South Gippsland) was implemented. The purpose of the study was to determine:

- Gaming behaviour;
- Attitudes towards gaming;
- Consumption behaviour;
- Feelings of personal well-being;
- Feelings towards the region they lived in;
- Factors known to be related to gaming and overall well-being;
- The relationship between those factors;
- Any differences between the regions; and
- Any differences between the overall study results and known results for the rest of Victoria and Australia.

1.2 Models

Two models were developed statistically. These models explored the relationships between gambling behaviour, attitudes to gambling, personal well-being and attitudes towards the local region. One model considers behaviour at the level of the individual, while the other considers the regional level.

The modelling analysis indicated strong (as expected) relationships between personal well-being and social and family life. They also showed that although gambling generally attracts negative perceptions, is considered a serious social problem, and a negative influence on the region, that this set of beliefs is not related to:

- Feelings of personal well-being;
- Personal gaming behaviour;
- Beliefs in the quality of life or economy of the region;

- Demographics (age, gender, income, occupational level or status); or
- Responses to the South Oaks Gambling Screen (SOGS). The SOGS is a standard battery of 23 questions used to measure the prevalence of problem gambling in the population. Ninety-eight per cent of the population in our surveyed regions achieved a score of four or less — people with scores of four or less are considered not at risk. This compares with the findings of state-wide surveys commissioned by the VCGA that 98.5 per cent of the population are not at risk.

The study concludes that while many respondents are opposed to gambling, this stance does not influence overall happiness or perceptions of the suburb. This suggests that views about gaming, and the availability of gaming in a particular region, are not important drivers of people's perception of their suburb. Additionally, for most respondents, gambling is part of an entertainment mix – respondents may choose to gamble and this is generally not related to their quality of life.

1.3 Treatment of problem gamblers in the analysis

This study was to determine the effects of gambling in the normal population. While problem gamblers were not excluded from the data, they have not been given particular attention. There were a small number of problem gambler respondents in the survey and this group is too small to provide meaningful results. Consequently, little meaningful information may be garnered about problem gamblers in this study.

1.4 Gambling behaviour and attitudes

Of the respondents, 51% had gambled in the six months prior to the survey. This group indicated that the primary reason for going to a poker machine venue was to relax, followed by having a meal and socialising. The perceived *quality* of the gambling rated seventh priority. Amongst poker machine players, the most frequently given reason for playing was for social reasons, followed by the belief they may “get lucky”, the thrill of winning, and to make a quick ‘buck’.

1.5 Comparisons to the average Australian

The KPMG Centre for Consumer Behaviour has been tracking the views of Australians by an ongoing Consumer Monitor Study over the last four years. When compared to the average Australian, the respondents in the survey:

- Were very similar on all the major “well-being” questions;
- Consumed more entertainment;
- Bought more consumables;
- Renovated or bought houses more;
- Bought cars more; and
- Played the poker machines as many times per year.

1.6 Variations between regions

The conclusion is that, while there were some variations between the regions, most are descriptive factors such as locality, demographics and leisure combinations with no particular relationship to gambling Research Objectives and Methodology

1.7 Objectives

The objectives of the survey were to identify:

- Problems that residents perceive with the area they live in, which problems are common to all areas, and which problems are particular to areas;
- Changes in consumption and lifestyle patterns over time. In particular, the survey focused on changes in:
 - general well-being and the components of well-being;
 - entertainment, sport, cultural and shopping patterns;
 - demand for services and amenities; and
 - use of community organisations, including sporting clubs;
- Preferences for particular types of gaming (gaming machines, table games) and the differential impact of varying access to these and the casino; and
- Socio-economic and demographic characteristics of patrons of gaming venues.

In addition to the objectives specified in the brief, KPMG supplemented the study by identifying those factors associated with different levels of gaming. This included socio-economic and demographic factors, and relevant lifestyle factors.

1.8 Desk research

The body of material available concerning gaming was reviewed. This included the previous studies commissioned by the VCGA. From this material, a list of candidate issues was developed for testing in the quantitative survey.

1.9 Developing a survey instrument

A survey instrument was developed in conjunction with the VCGA. This instrument used KPMG's Centre for Consumer Behaviour's proprietary lifestyle and consumption questions, as well as a range of questions, for comparative purposes, previously used by the VCGA. The latter most notably included the South Oaks Gambling Screen (SOGS) scale.

The SOGS is a standard battery of questions used to determine whether a person may have a gambling problem.

KPMG's questionnaire consisted of 199 questions containing:

- Sample filters to ensure the sample was representative of the population being sampled;
- Demographics including income, age and occupational status;
- Frequency of types of gaming by preferred venues;
- Issues identified from the desk research;
- Current lifestyle issues, compared to those three years ago, with a particular focus on changes in:
 - general well-being and its components;
 - entertainment, sport, cultural and shopping patterns;
 - demand for services and amenities; and
 - use of community organisations, including sporting clubs.
- Lifestyle factors known to be associated with gaming.

1.10 Data collection

The sample for the survey was drawn so as to coincide with local government areas for each of the six study regions. These boundaries are also used by the ABS in their regional economic data collections. Therefore the design of our sample has meant that survey results can be cross-referenced against ABS economic data.

A total of 1000 interviews were collected. From each of the six local government areas (LGAs) 167 responses were collected by telephone. This sample size in each area was sufficient to ensure statistical tests could be carried out with a significance of 0.05 at each location level.

Interviews were carried out from a single supervised interview room in Melbourne.

1.11 Analysis

Multivariate analyses were used to develop a model of the influence of gambling. This model included the relationship between gambling and other lifestyle, demographic and socio-economic predictors of wellbeing. Descriptive statistics were reported for the items in the questionnaire.

Comparisons of municipalities were undertaken to determine the factors that are common across all municipalities and those that are different. The tests were of means with differences reported at the 0.05 level of significance.

We have tested certain hypotheses about the link between SOGS scores and personal happiness, and between views about the impact of gaming machines on a suburb or region and assessments of the suburb or region. We have tested these hypotheses by looking for correlations between variables.

2 Models for Gambling and Life Satisfaction

2.1 Model overview

Two interaction models were developed to understand how gambling affects happiness with self or with suburb/region. These models operated at two different levels, namely at the individual level (ie. interactions of factors that led to the respondents' rating of life happiness) and at the suburb or region level (ie. interactions that led to respondents rating the suburb or the local economy as 'good'). These models show correlations between factors; from these correlations, causal links are inferred. Models include gambling and other factors and addressed the major question – 'Is there a set of relationships between frequency of gambling and other life factors in the normal population of the regions?'

Both models were determined statistically using multivariate techniques. Only those interactions indicating a statistically significant relationship between factors have been reported.

In the models a:

- Heavy arrow indicates a strong relationship with an equivalent correlation coefficient of 0.4 or greater;
- Medium arrow indicates a moderate relationship with an equivalent correlation coefficient between 0.3 and 0.4;
- Light arrow indicates a weak relationship with an equivalent correlation coefficient of between 0.25 and 0.3;
- Absence of an arrow indicates no substantial relationship between factors; and
- Absence of a factor on the diagram indicates that it does not interact with any of the other factors in the model.

The modelling process examines the relationship between how people feel about their suburb and the level of gaming they (claim they) participate in. The modelling process answers the question – "If we have a group of people who vary on a factor – say belief that their suburb is good – then what other things vary systematically with that factor?" Since there is no systematic relationship between attitudes towards the suburb and perceptions that gaming has been good for the suburb, we conclude that there was no relationship between attitudes towards gaming and attitudes towards the suburb. This is despite strong negative ratings about the effects of gaming on the suburb. The logic for interpreting the model is further explored in Appendix 1.

2.2 Model – individual level

This model (see below) explores the relationship between factors that relate to personal situations such as personal happiness or family relationships. The model shows:

■ There is a direct relationship between individual happiness and:

- a full social life;
- a good family life;
- an absence of loneliness and boredom; and
- low stress levels.

These four factors are consistent with the body of knowledge available on the psychology of happiness;

■ There is no relationship between individual happiness and gambling as measured by either:

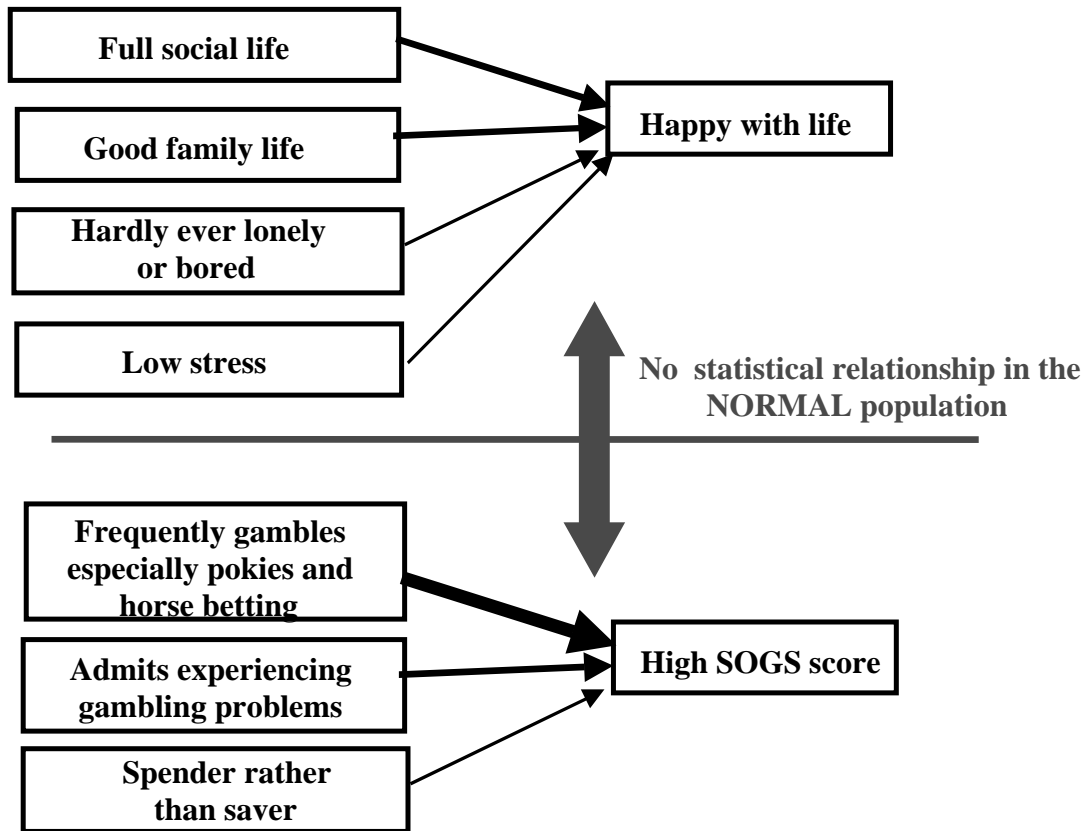
- the frequency of gambling on any of the tested forms of gambling; or
- the SOGS score – however care should be taken in interpreting this, given the small number of respondents in our survey with high SOGS scores.

■ The SOGS score in turn is related to:

- frequency of gambling – especially playing poker machines or betting on horse racing;
- admitting experiencing gambling problems; and
- being a spender not a saver.

The relationship between frequency of gambling and experiencing gambling problems is logical and provides evidence of construct validity. The relationship between ‘being a spender’ and extent of gambling is not surprising. It is surprising, however, that there is no relationship between the SOGS score and excitement from risk taking and rule breaking.

Model - personal impacts on life happiness



2.3 Model – suburban or regional level

Respondents were asked a series of questions about their suburb and region. These ranged across several factors, and included:

- An overall assessment of the suburb/region;
- Whether the local economy is good;
- Whether it is safe, has a sense of community, a low crime rate, plenty of work or whether people play sport; and
- Whether gaming been good for the suburb, and individual assessment of gaming on suburban life.

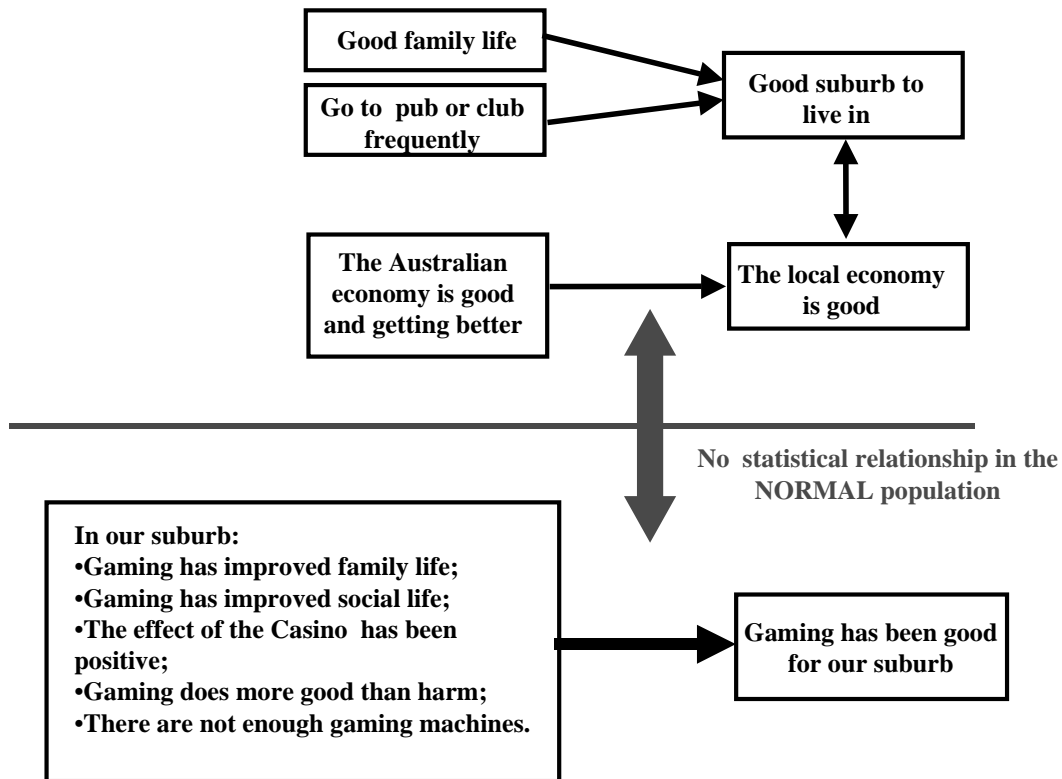
The model shows:

- Assessments of whether the suburb is good to live in is affected by, and in turn affects, assessments of:
 - whether the economy is good;
 - whether the person has a good family life – good family life engenders overall feelings of wellbeing that influence the assessment of the suburb;
 - whether a person goes to a pub or club frequently; and
 - whether the state of the local economy is related to the assessment of the national economy.
- Assessments of whether gaming has been good for the suburb were strongly related to feelings about other gaming related issues, namely whether:
 - gaming had improved family life;
 - gaming had improved social life;
 - gambling is believed to have done more harm than good;
 - the Casino has had a positive or negative effect; and
 - there are enough poker machines.

While there are strong negative feelings about the impact of gaming machines on the suburb and the internal consistency between the other assessments of gaming machine and gambling impacts, there is no statistical relationship between this set of beliefs and assessment of:

- Personal happiness;
- Suburb quality overall; or
- Local economy.

Model - suburb/region level



2.4 Factors not in the model

The analysis reviewed all variables in the survey to determine their interactive effects. Those factors not included in the model had no statistically significant relationship with the model factors. Of particular note are demographics such as gender, age, occupation, education and region.

2.5 Conclusions

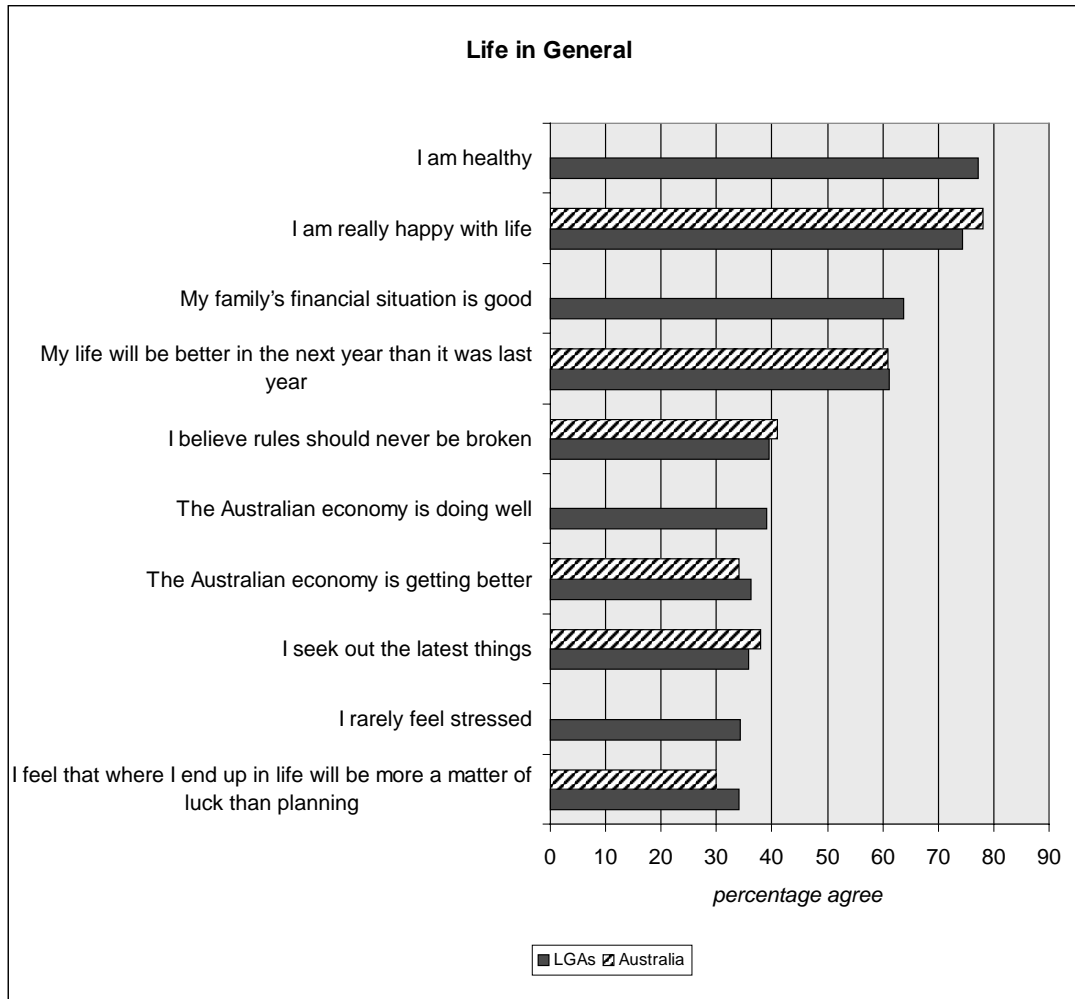
The conclusion that may be drawn from the models are that while many respondents are opposed to gambling, this is not related to decisions in either their own lives or perceptions of the suburb. For most respondents, gambling is part of an entertainment mix – respondents choose to gamble or not and this is not related to their quality of life.

3 Descriptive Results

3.1 Whole Sample

These results are provided to show general levels of well being across the whole sample. Causal factors are not specifically highlighted because the modelling shows that few are specifically related to gambling in the normal population.

The survey asked respondents a number of questions relating to their attitude towards life in general. These results have been compared with those of a national average, taken from the KPMG Consumer Behaviour Monitor (Nov 99 release).¹

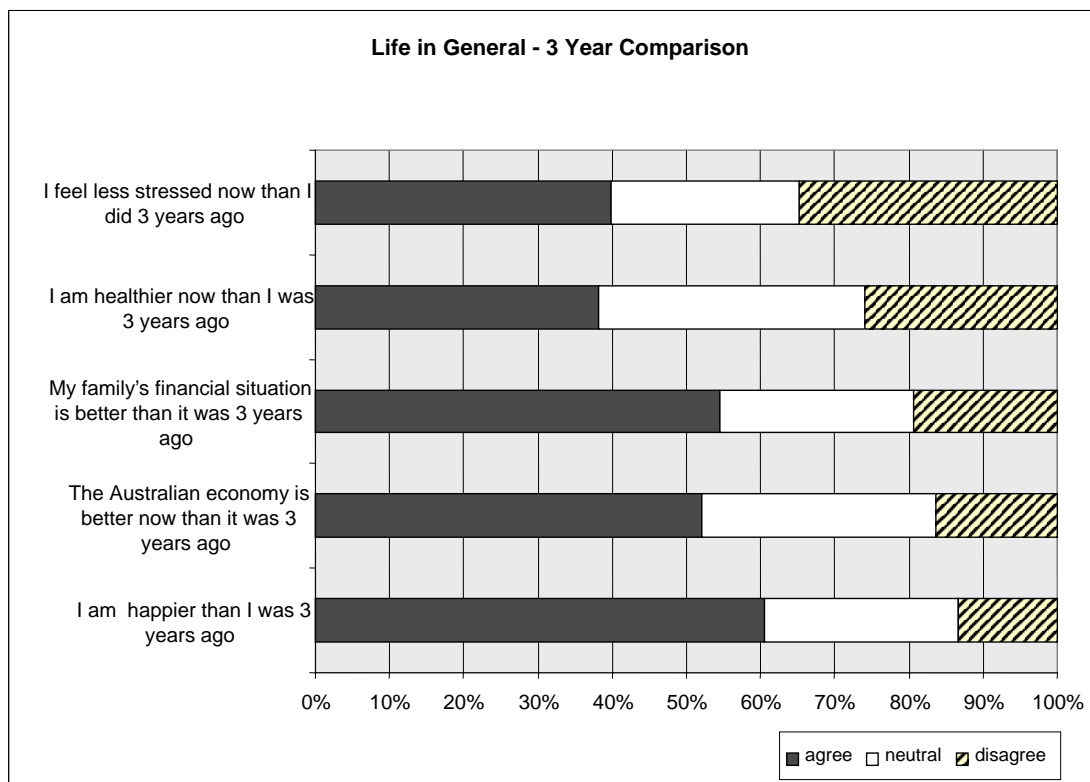


¹ For those lines where no Australian result is shown, there is no comparable question in the Australian sample. This is common to all further graphs.

All 'percentage agree' scales include both 'agree' and 'strongly agree' ratings.

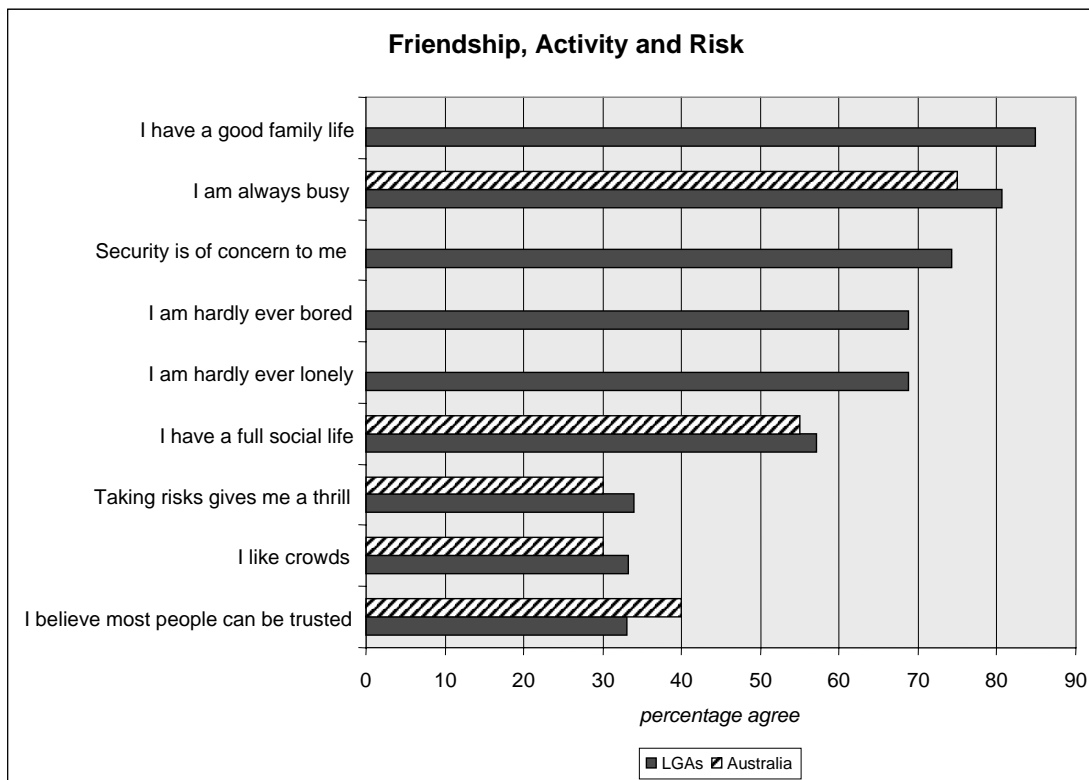
The results for the survey are comparable to the national average, with no substantial differences. The data shows that the respondents are happy with life, optimistic about their personal future and slightly pessimistic about the economy. The last point is a belief in luck rather than planning (locus of control), and indicates only a slightly smaller locus of control in respondents compared to the balance of Australians.

When the respondents from the six LGAs were asked to compare their feelings about life today to life three years ago, the results show that 60% of people described themselves as happier today than they were three years ago. This is consistent with the positive responses to their financial situations and the Australian economy. However, it appears that more than half the respondents are also more stressed than they were three years ago and only 38% feel they are healthier now.



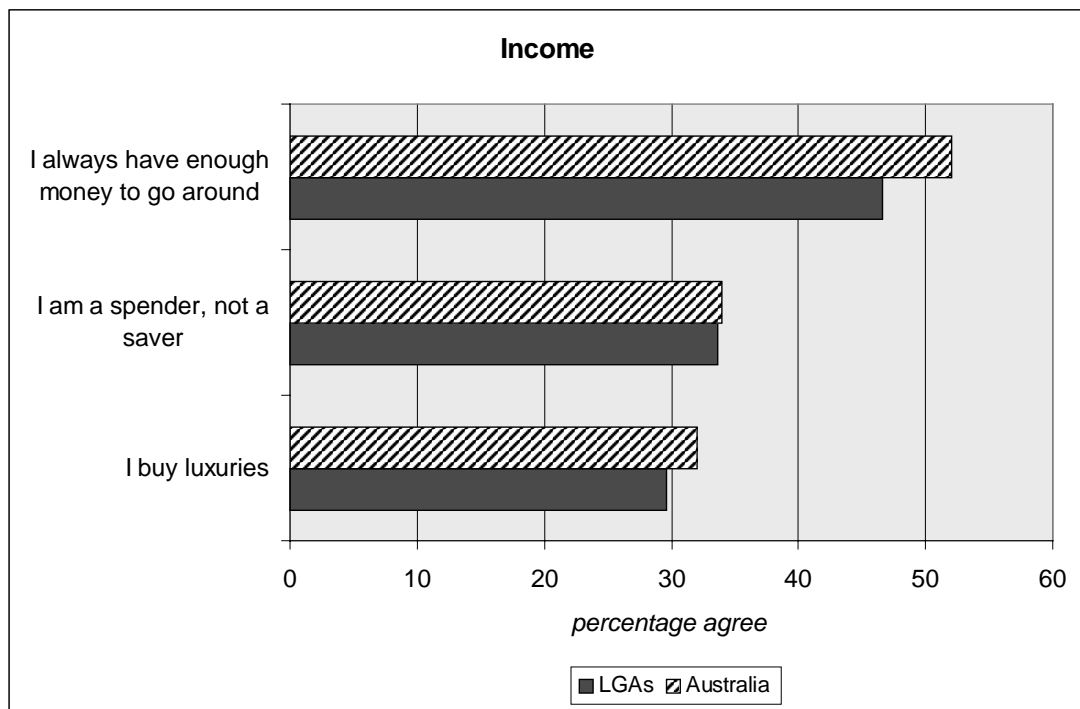
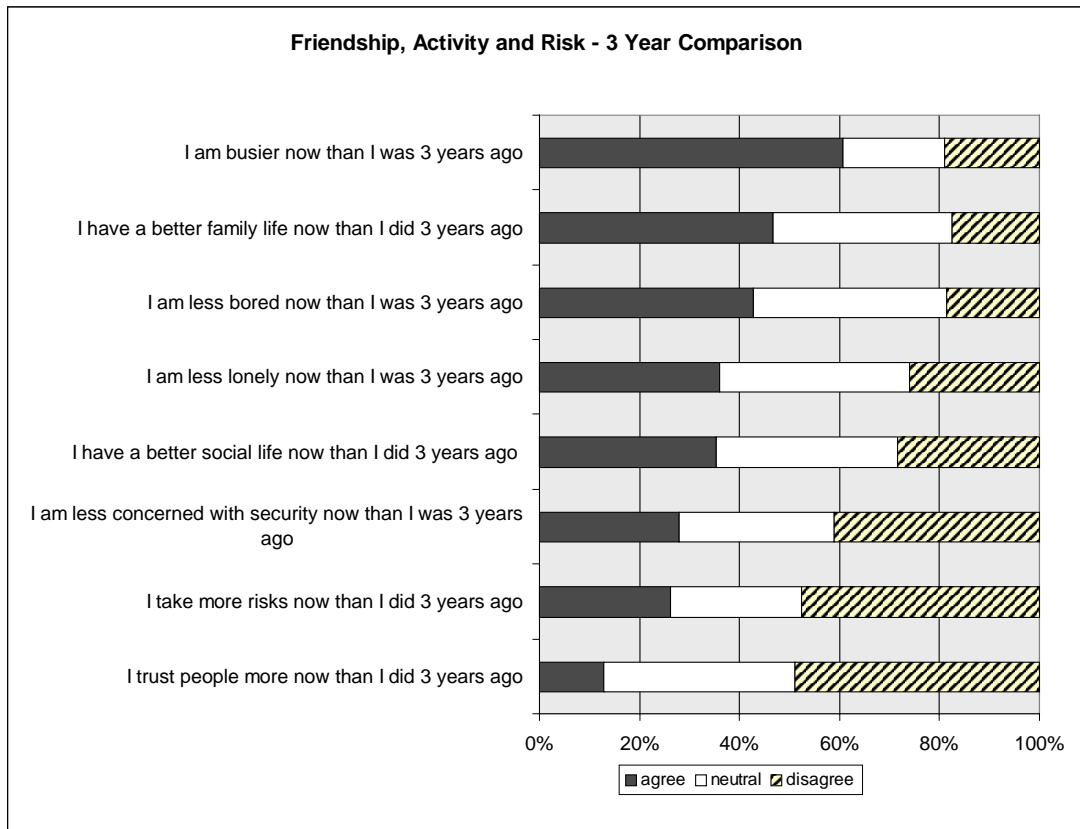
The results describing the LGA respondents' attitudes to friendship, activity and risk were slightly higher compared to the Australian average. Respondents to this survey felt that they are somewhat busier, have a slightly more full social life and are more positive towards crowds. However, they are less trusting of people in general – forty per cent of Australians feel most people can be trusted, compared with 33% of the LGA respondents.

There were a number of questions that do not have a comparable Australian average. A very positive response was recorded towards family life (85%), however, 75% of those surveyed expressed a concern about security.

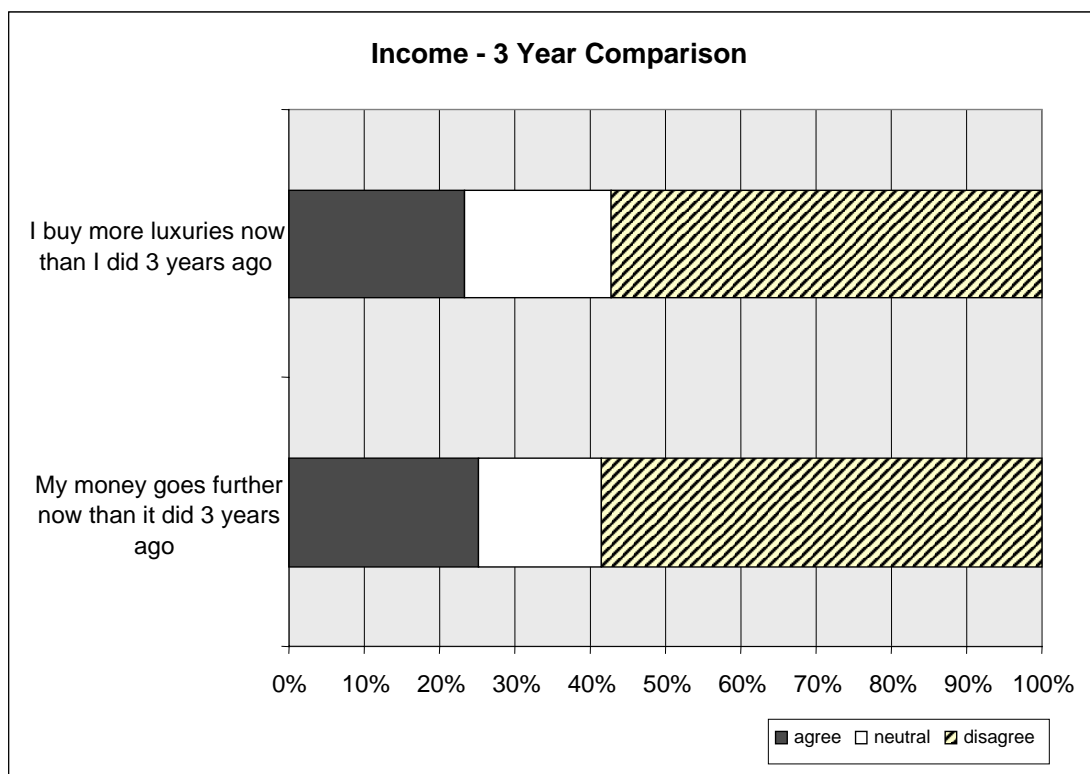


When respondents compared their attitudes to these topics to that of three years ago, responses were not as positive. Half agreed they were busier now than they had been at that time, however only 47% felt that they had a better family life now. Only 42% felt they were less bored now, and less than 40% felt less lonely. There was also a less than positive response to the idea that their social lives were ‘better’ now than they were three years ago. The most negative response however, was expressed in relation to trust – with only 12% of LGA respondents agreeing that they trusted people more than they did three years ago.

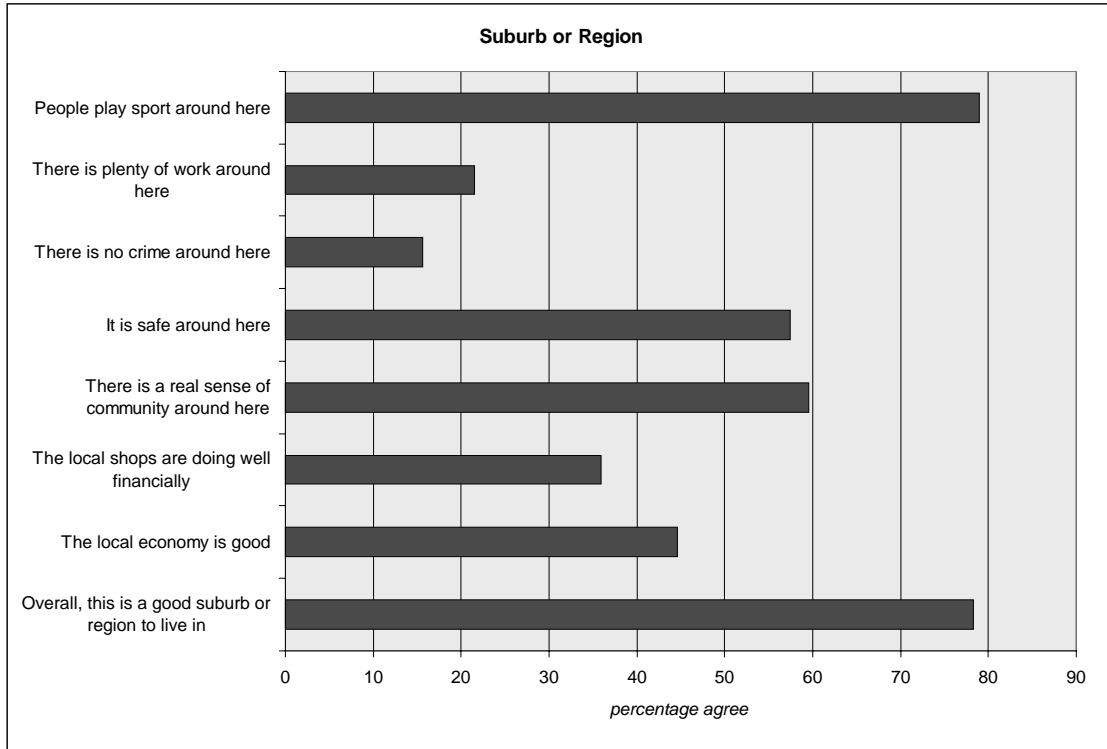
Despite this apparent deterioration in sentiment, there was no causal link to the individual happiness model.



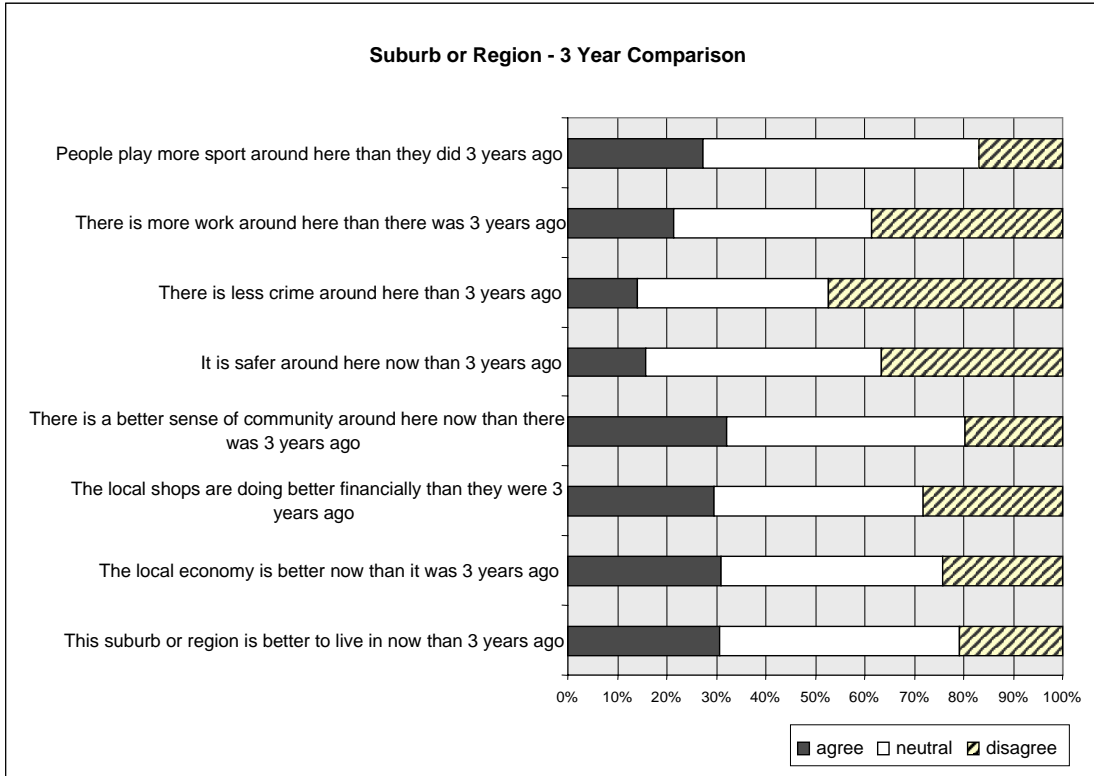
These two graphs show a comparison of attitudes to income from the LGA and national respondents. The graph shows that there is a difference of about 5% between the LGA sample (47%) and the national sample (52%) in relation to the statement 'I always have enough money to go around'. There is also a slight discrepancy between the two sample sets in their attitude to being spenders and buying luxuries. In relation to a three-year income comparison, there were low results recorded from the respondents. Only approximately 25% felt that their money goes further than it did three years ago, and even fewer felt that they buy more luxuries than they did three years ago.



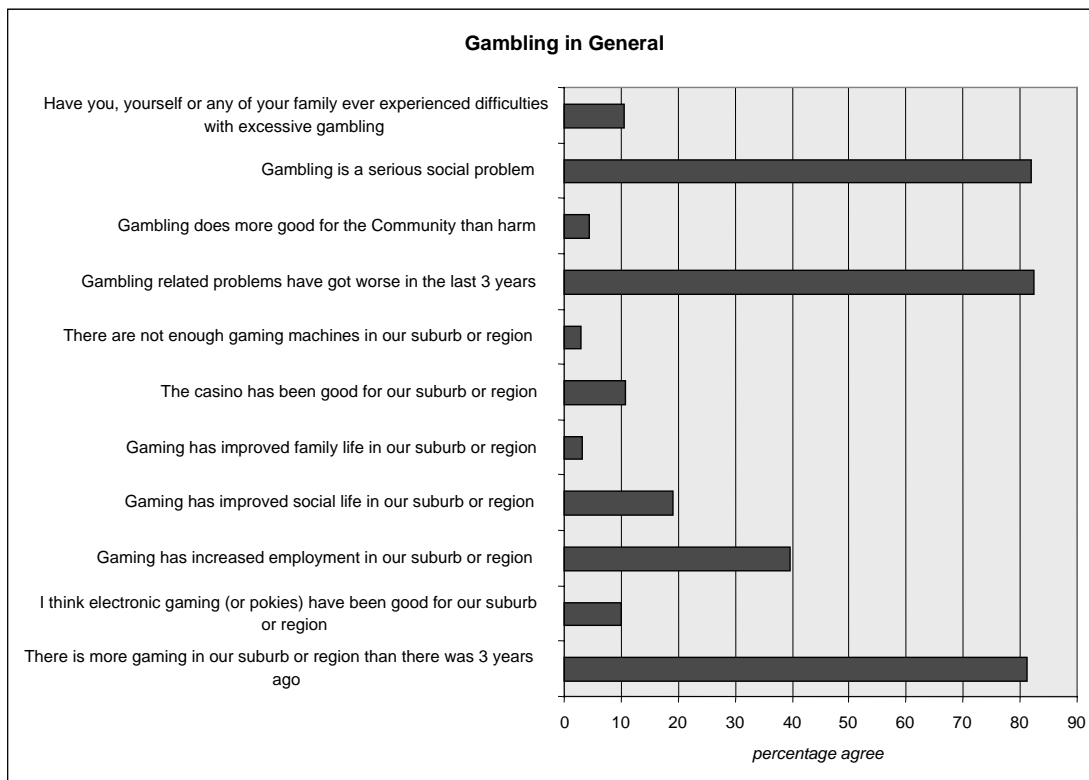
Sport is a popular past time in all the suburbs surveyed, with almost 80% of those surveyed saying that 'people play sport around here'. There was also a very positive response to the idea that the suburb/region was a good one to live in (78%). Slightly lower, although still positive were the responses to the sense of community and safety (59% and 57% respectively). However, less than half the respondents felt that the local economy was doing well (45%), or that the local shops were well off (37%). The most negative answers were recorded in response to the amount of work in the areas surveyed (22%) and the idea that there is no crime in the suburb or region (16%).



When respondents rated how they remembered feeling three years ago, answers were even more negative. Only about 30% of people felt that there is now a better sense of community, or that the local economy, shops or even suburb is better. Even more negative responses were recorded for the remaining questions. Only 14% of people surveyed feel that there is less crime in their area than there was three years ago.

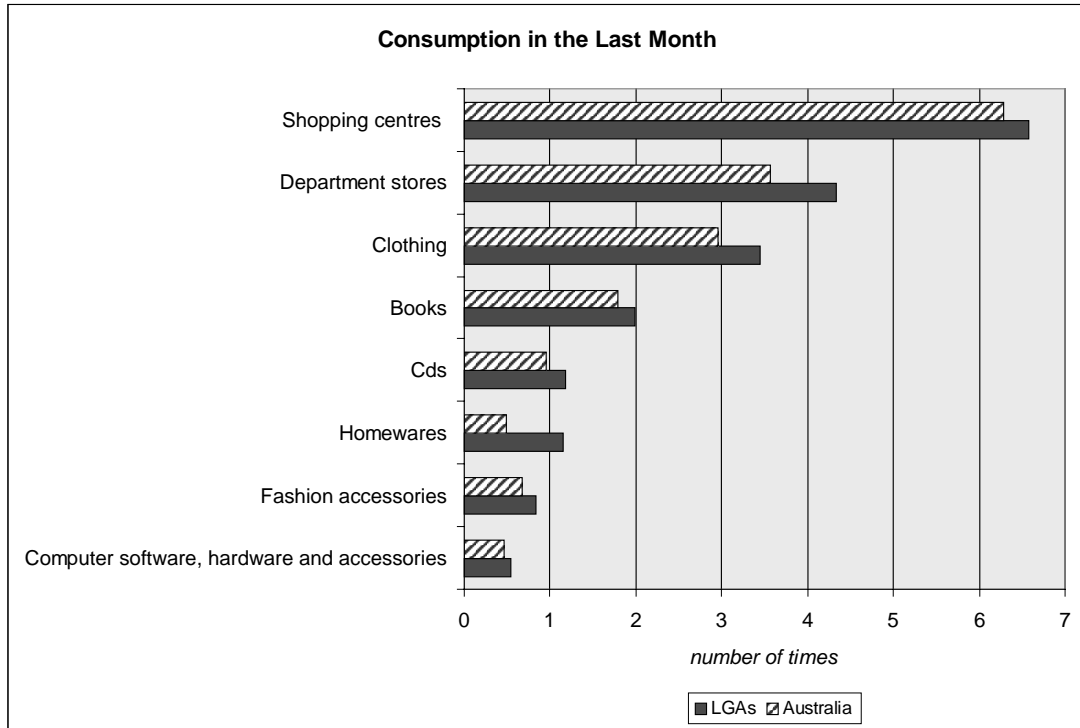


Over 80% of respondents felt that gambling related problems have got worse in the last three years, that there is more of it in their area, and that it is a serious social problem.

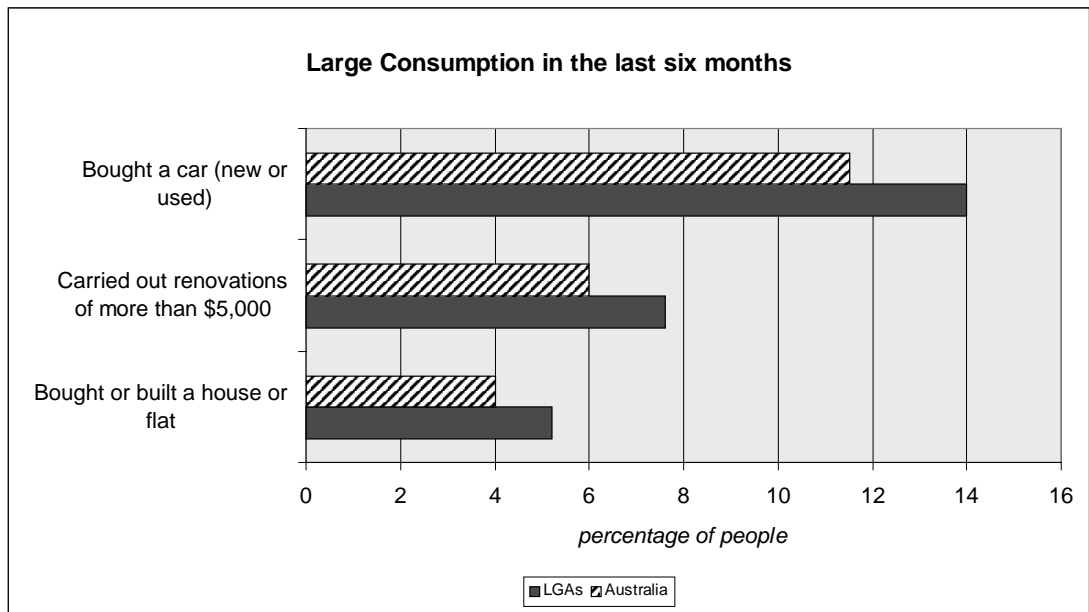
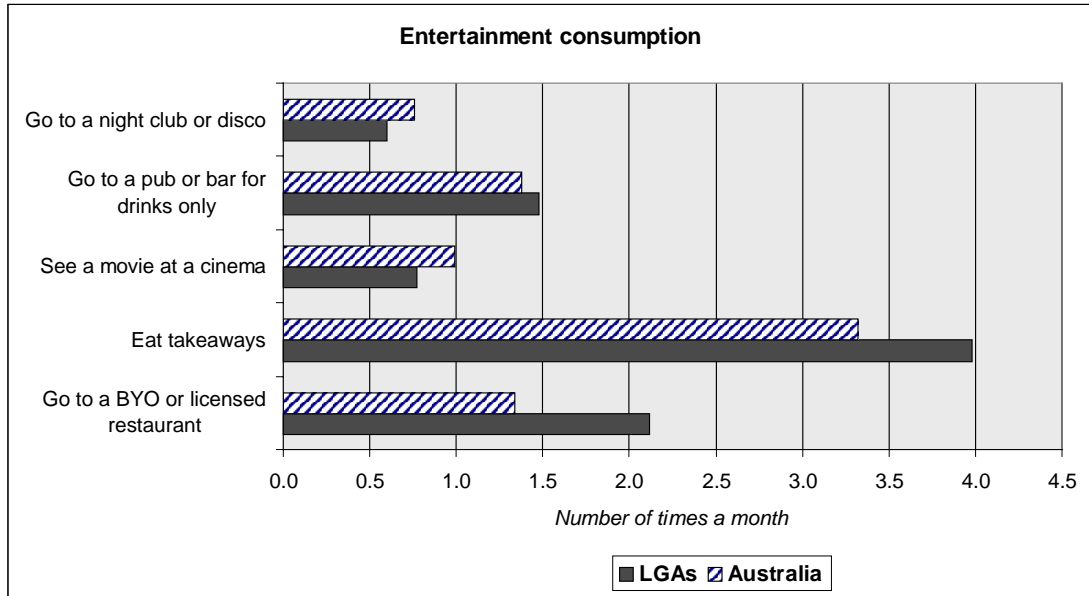


Less than half the respondents felt that gaming has increased employment in their area or has improved their social or family lives. Only a small percentage felt that the casino (11%) or pokies (10%) has been good for their suburb or region. In fact, when the results are examined in reverse, over 90% felt that gambling does more harm than good for the community.

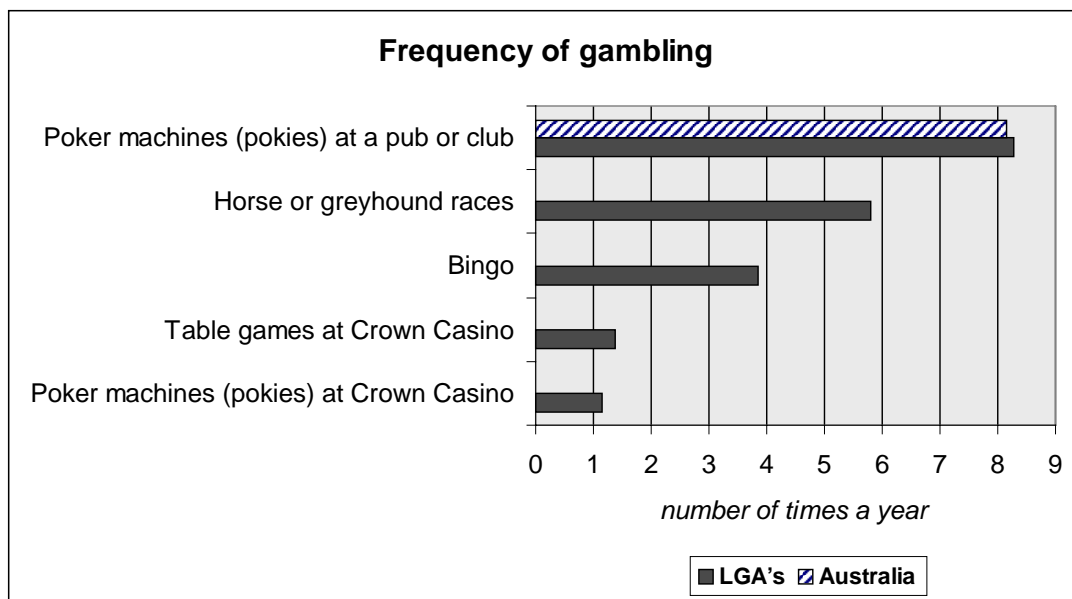
‘Consumption’ at the LGA level has been compared to that of a national sample. It can be seen that consumption is slightly higher in all categories surveyed. The most substantial differences were for department store visits in the last month – almost 4.3 visits compared with the national average of 3.6, and clothing consumption. There was also a relatively substantial difference in the amount of homewares bought in the last month.



The graph below illustrates entertainment ‘consumption’. Takeaway was consumed four times, and restaurants were visited about two times in the last month — substantially more than for the Australian average. The least frequented venues were nightclubs or discos. ‘Large Consumption’ incorporates cars, and house buying and renovating. The LGA respondents consume more of these items than the national average. The most significant difference is in the new or used car category, where 14% of respondents had purchased a car in the last six months, compared to just over 11% of the national sample.



The graph below shows the frequency of gambling among the LGA respondents. Not surprisingly, the most popular gambling activity is playing the poker machines at a pub or club. The LGA respondents participated in this almost 8.2 times a year compared with a very similar national average. Greyhound or horse races was the next most common activity, and the least was playing the poker machines at Crown Casino.



There were a number of questions in the survey specifically addressing those respondents who said they played poker machines. “Pokie” players spent less than an hour playing on their last visit to a pokie venue, and spent about \$45. They were relatively dissatisfied with their experiences: on a scale of 1-100, the average response was 47. For those who said they played ‘table games’ at Crown Casino, there was a more positive response to their experience at playing these games. On a scale of 1-100, the average response was over 65. Table players spent an average of 1¼ hours playing, and spent almost \$100 each time.

3.2 Conclusion

The respondents in the survey are similar to the rest of Australia in their levels of overall happiness. Their consumption patterns vary from the national sample, as they are more likely to consume entertainment and consumer goods and to invest in housing and cars compared to the national average.

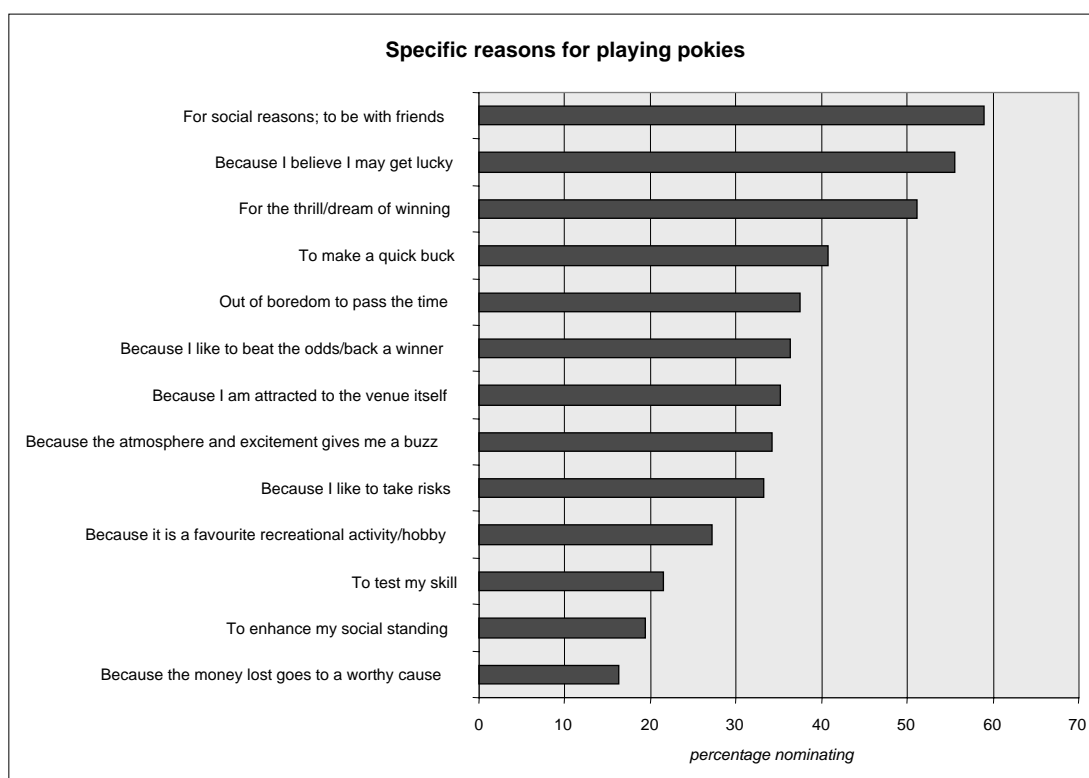
Respondents show no difference in their frequency of playing the poker machines than the average Australian. They strongly believe that gaming has done more harm than good for the community, despite some recognition of positive impacts on employment and social life in the region. Given an emphasis on entertainment in the regions and the lack of relationships between gambling and what makes people happy, it can be concluded that pokies play a part of the entertainment mix of the areas and are consumed as such.

Around 60% of respondents are happier now than three years ago, and around 80% perceive that their family’s financial situation has not deteriorated from three years ago. Stress and health are issues for around 60% of respondents. However, almost 8 in 10 believe their region is good to live in.

4 Gambling participants in our survey

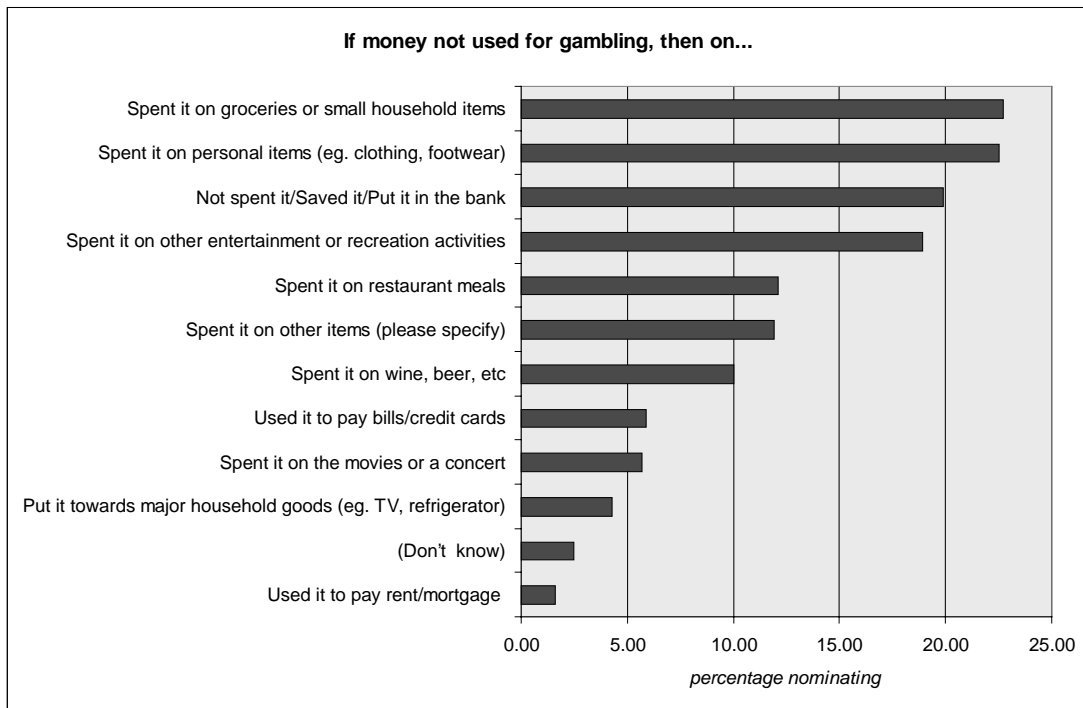
In our survey, ‘gamblers’ are defined quite broadly and include all those people who have participated in gambling at least once in the last six months. They make up 51% of the sample. This sub-sample was questioned further on their gambling behaviour and attitudes, and the results are reported below.²

The most popular reason among gamblers for playing poker machines was described as being ‘for social reasons; to be with friends’. The next most common reasons were the chance of getting lucky (55%) and for the thrill or dream of winning (52%). The least frequent reason was described by 17% of gamblers as being because the money goes to a worthy cause, and other reasons given by less than 25% of gamblers were ‘to test my skill’ and ‘to enhance my social standing’.



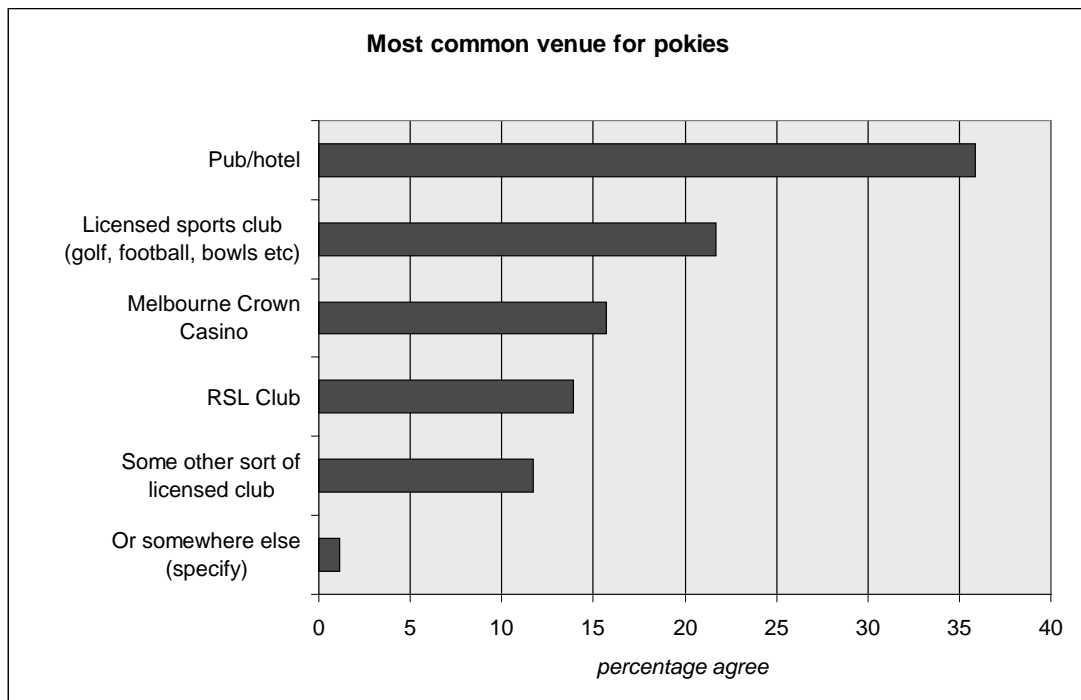
² Comparisons between KPMG’s findings for the six regions and the State-wide findings of the Patterns survey are included in Chapter 5 of the Main Report (see Table 5.5). Comparisons between KPMG’s findings for each of the six study regions are included in Chapter 5 of the Main Report (see Table 5.4).

The following graph details what gamblers indicated they would spend their money on had they not spent it on gambling. Around 20% would have saved the money, approximately 20% would have spent it on groceries and approximately 20% on personal items. Less than 5% of people said they would put it towards rent or mortgage, and 6% indicated that they would pay bills or credit cards.

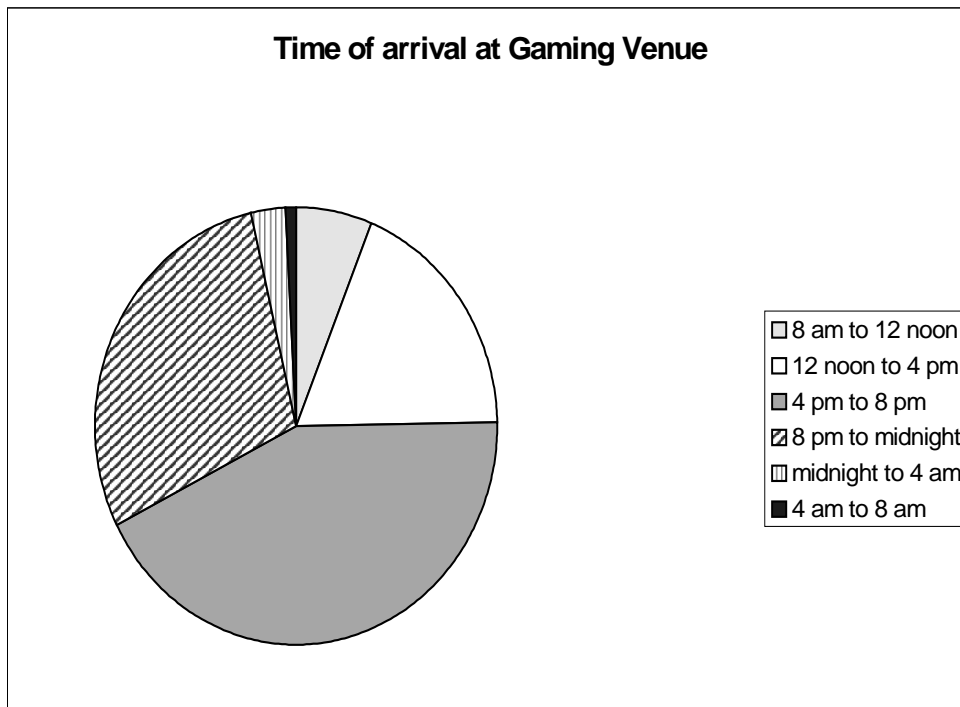
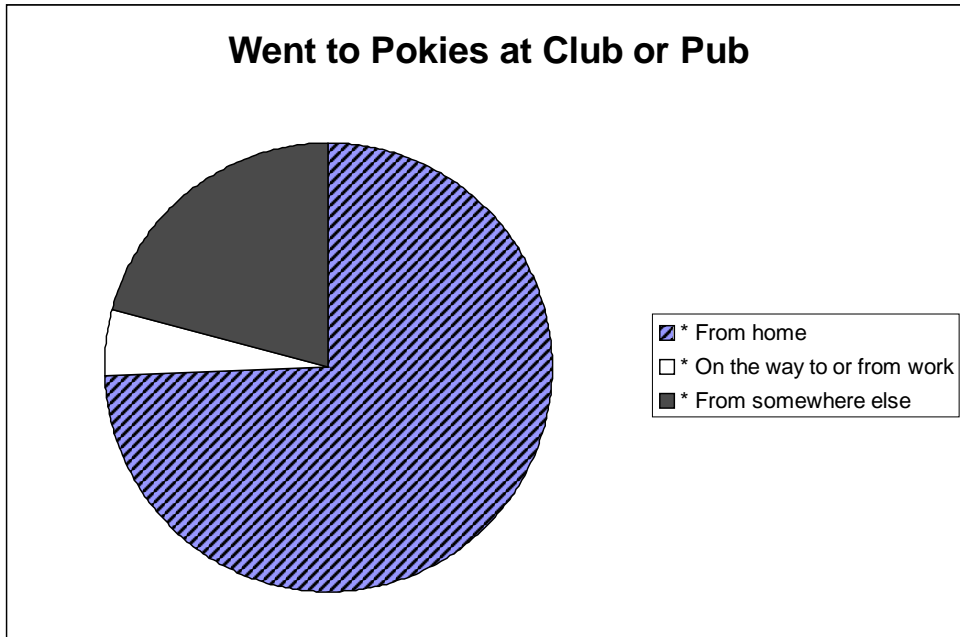


4.1 Venues for playing poker machines

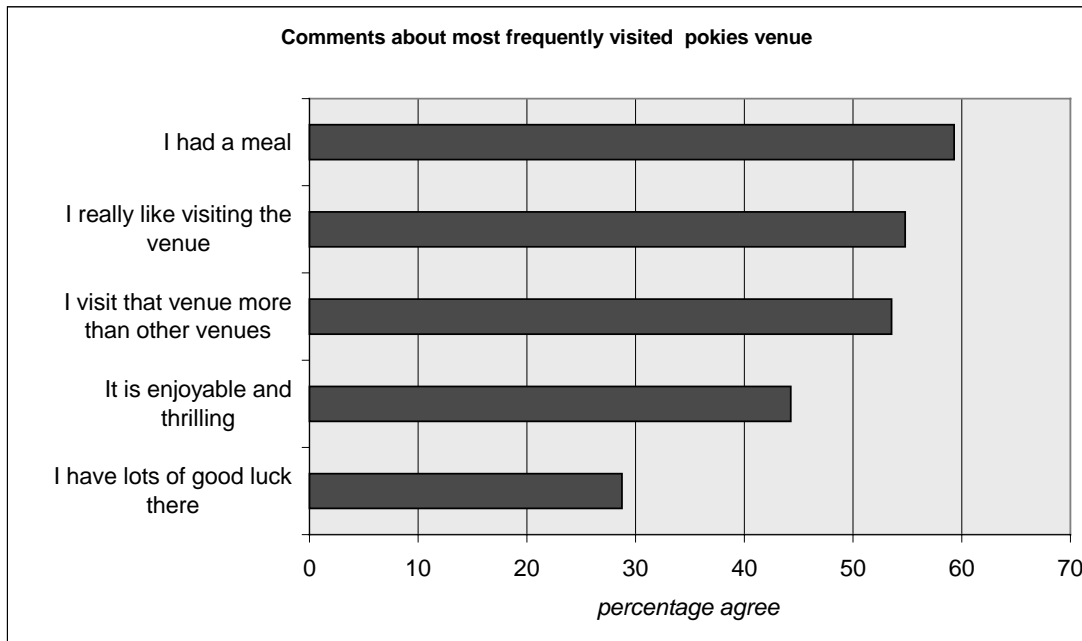
The most common venue among poker machine players is a pub or hotel. Over 35% of respondents chose this option, with the next most popular venue being a licensed sporting club. Other options included the Casino (16%); the RSL (14%) and other licensed clubs (12%).



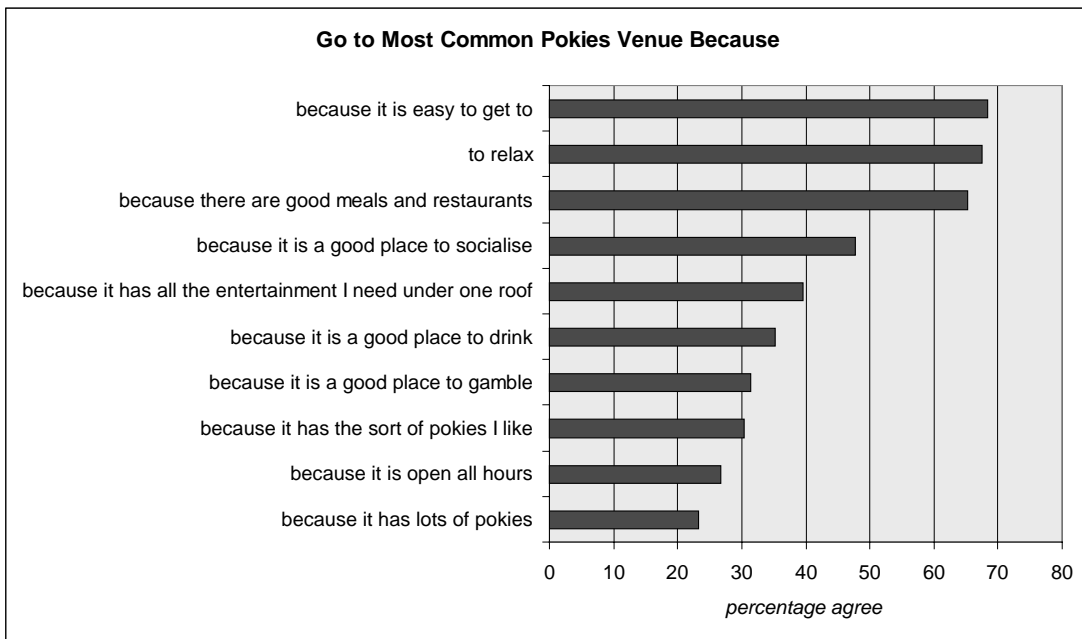
Of the 'pub or club' poker machine players, the majority travel to the venue from home, rather than from work or from other activities. The majority arrive between 4pm and 8pm, although other high responses included 8pm to midnight, and noon to 4pm. The average poker machine player stays at the venue for almost 2½ hours.



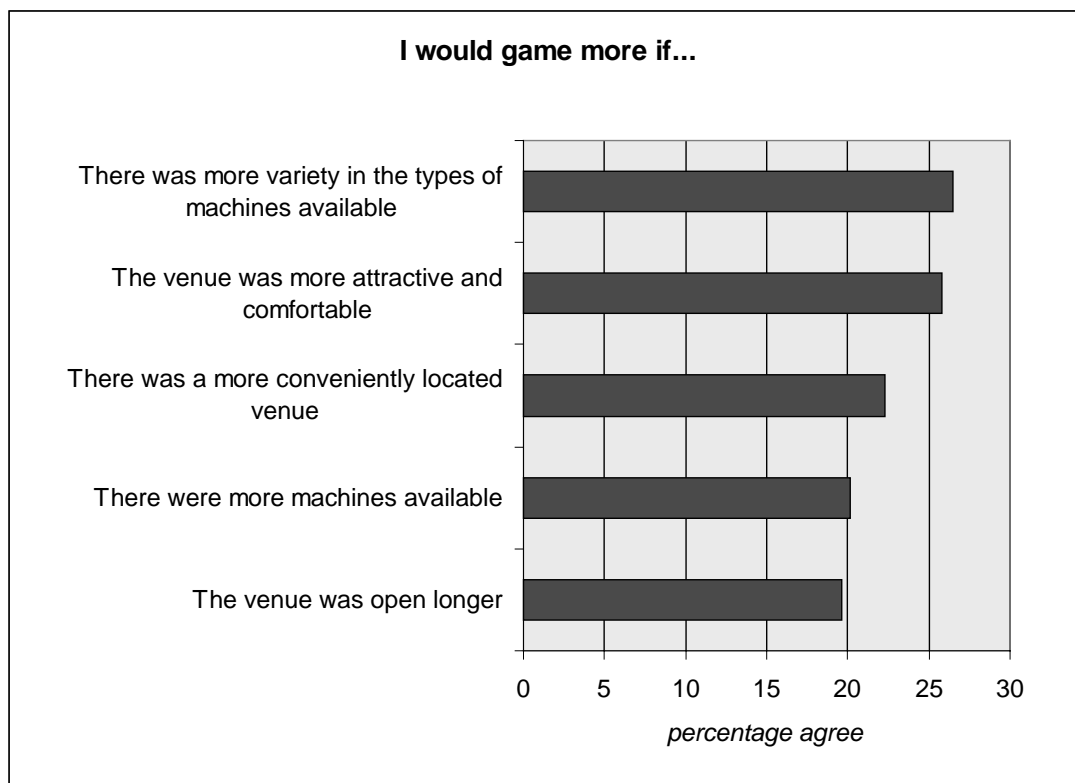
When asked what they did at their most frequently visited venue, the most common response was ‘had a meal’ there. Over half the poker machine players also record liking the venue and visiting there more than other venues. However, only 28% said that they had lots of good luck at their favourite venue.



When asked *why* they visited their most common venue, almost 70% of the poker machine players responded that it was easy to get to, that there were good meals and restaurants, or simply that they went there ‘to relax’. Only about 25% of people said that they visited the venue because it had lots of pokies.



When poker machine players were asked what it would take to make them game more, the most common response was if there was more variety among the machines. Approximately 11% felt the venue could be more attractive and comfortable, but only 3% felt that the venue being open longer hours would make them game more.



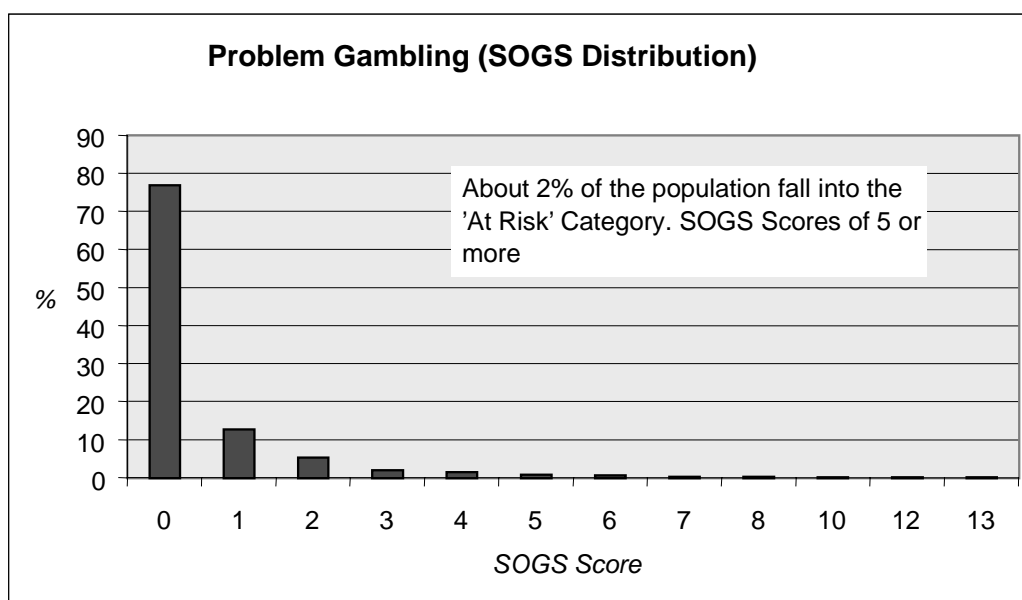
4.2 Conclusion

Just over half of the total number of respondents sampled were gamblers. For most of these gamblers, when visiting pokie venues, the poker machines appear to be of relatively low importance in the total entertainment experience. They are interested in the meals, and in socialising, in addition to playing poker machines. The games themselves appear to be an incidental activity for most gamblers.

5 South Oaks Gambling Screen (SOGS)

The respondents who had gambled in the last six months were asked the battery of questions from the South Oaks Gambling Screen, which is an instrument used to measure the prevalence of problem gambling in the population. We derived a score to identify the percentage of the population in our survey regions 'at risk' of problem gambling using the approach adopted in the state-wide survey, 'Sixth survey of community gambling patterns and perceptions' (hereafter referred to as the 'Patterns' Survey).³

In the Patterns Survey, the distribution of scores reduces exponentially from a zero score, with almost 72.6% of the Patterns Survey sample of gamblers scoring zero, 15.9% scoring one, 5.3% scoring two and a steady decline thereafter. The SOGS distribution for gamblers in our study regions shows a similar distribution as the state-wide results (see below). In our regions, just over 75% of our sample of gamblers score zero, 12.6% score one, and 5.3% score two.



Our survey indicates that only 2% of the population in our study regions are at risk of problem gambling. The Patterns survey found that 1% of the state population in 1997, and 1.5% of the population in 1998 were in the "At risk" category (a score of 5 or more). The figure of 2% obtained in the KPMG survey is not significantly different from that found in

³ Ref: 'Definition and Incidence of Problem Gambling including the Socio-Economic Distribution of Gamblers' Australian Institute for Gambling Research (1997) commissioned by the VCGA. In this report, it was recommended that despite having some limitations, the SOGS was the best currently available instrument to measure the prevalence of problem gambling and that it should be used in the short term for the VCGA's ongoing survey series of community gambling patterns and perceptions. The VCGA has included the SOGS in the last three of its ongoing Community Gambling Patterns surveys.

The Patterns Survey given the size of the sample and the variation expected with a prevalence rate of this size.

This indicates that the populations of the LGAs surveyed are not substantially different from the rest of the Victorian population with the possible exception of there being more low level, low risk gambling activity.

The following sets out our sample of gamblers' responses to several of the SOGS questions. These three questions are included because they are the only ones where a significant percentage of gamblers in our survey provided a response other than 'never'.

1. Trying to "win back" money lost.

Over 85% of the gambling respondents suggested that they never return another day to win back money that they had lost. Just under 12% indicated that they did this sometimes or less, and 1.8% of gamblers suggested that they did this mostly or every time.

2. Claiming wins when money was lost.

Of all gamblers, 92% indicated that they never claimed to be winning money when they had really lost. Approximately 7% of gamblers suggested they did this sometimes or less. Over 1% said they did this mostly or every time.

3. Having gambling problems.

Slightly over 92% of gamblers suggested that they never felt that they have had a problem with gambling or that their gambling was out of control. Approximately 6% of gamblers suggest that they have felt this way sometimes or less. Nearly 2% of the sample of gamblers indicated that they mostly or always felt this way.

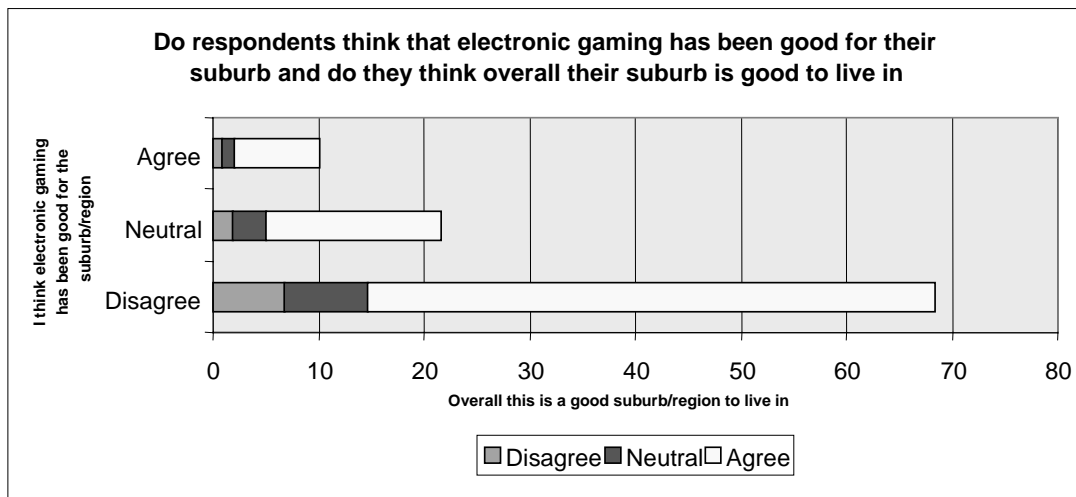
Appendix 1: Modelling of relationships between issues

The modelling process explores the relationship between factors to establish whether there is likelihood for one factor to influence the other.

If there was a relationship between, say ‘This suburb is a good suburb to live in’ and ‘Gaming has been good for our region’ then the ratings on each question would vary systematically. If there was a systematic positive relationship, then it would be concluded that gaming had indeed been good for the suburb. If there was a systematic negative relationship then we would conclude that gaming had been bad. In reality there is no systematic relationship between the factors, hence we conclude that gaming is not actually rated as having a bad influence. This conclusion is reached despite the fact that gaming is uniformly rated as being bad for the suburb. This apparent contradiction can be resolved by understanding that people have a view that gaming is bad. They also usually like their suburb for a whole range of reasons, and for most, the actual impact of their dislike of gaming does not affect their liking of the suburb.

Example: Attitudes towards suburb & region

For those who have differing views on poker machines, we can compare the proportion of respondents who like living in their region. It can be seen that the views about living in their region are split roughly the same, irrespective of a respondent’s view about gaming. Respondents appear to develop their views about their region irrespective of their views on gaming. Our econometric work in Supporting Paper No. 2 confirms this lack of correlation with respect to their actual gaming behaviour as well.



Appendix 2: Further comparisons with “Patterns Survey” – Roy Morgan

1. Playing bingo.

In this Appendix, we set out some comparisons between the findings of our survey and those in the “Patterns Survey”. In comparison to the “Patterns Survey”, which found that 3% of the population play bingo at least once a month, we had similar findings with just under 7% of the population play bingo at least once a month.

2. Betting on horses and greyhounds

The “Patterns Survey” found 9% of the population gamble on either the greyhounds, horses or trots at least once a month. Similarly, we find that 8.5% of the population gamble this way at least once a month.

3. Playing poker machines.

From our study, almost 19% of respondents suggested they play the poker machines more than once a month at a pub or a club, and approximately 2% suggest that they play poker machines at the Crown Casino more than once a month. This can be closely paralleled to the “Patterns Survey”, which suggests that 13% of the population play the pokies at least once a month and further that 3% of the population frequent the casino more than once a month.

4. Playing Crown Casino table games

We have found that approximately 2% of respondents frequent the Crown Casino at least once a month to play table games. This is similar to the Patterns Survey finding that 3% of the population attend Crown Casino at least once a month. The above data indicates that our sample has included respondents with broadly similar gambling behaviour to that of the sample in the Patterns Survey.

Appendix 3: Average scores

VCGA Gaming Survey		mean	min1	max	std	number	variable
ref: VCGA99-BDT09-Reports.xls							
	Note all attitude variables converted to 0=strongly disagree, 50=neutral, 100=strongly agree						
	this applies to all variables with beginning with X2, X3, X5						
	All other variables are unconverted scores						
PART B - PERSONAL VALUES							
Life in general							
1	I am really happy with life	74.03	0	100	23.1	1000	X5B(1)
2	The Australian economy is doing well	53.20	0	100	24.5	1000	X5B(2)
3	The Australian economy is getting better	52.88	0	100	23.25	1000	X5B(3)
4	My life will be better in the next year than it was last year	67.10	0	100	25.13	1000	X5B(4)
5	My family's financial situation is good	65.08	0	100	26	1000	X5B(5)
6	I feel that where I end up in life will be more a matter of luck than planning	43.98	0	100	31.65	1000	X5B(6)
7	I believe rules should never be broken	52.45	0	100	31.48	1000	X5B(7)
8	I seek out the latest things	48.85	0	100	27.7	1000	X5B(8)
9	I am healthy	72.45	0	100	24.75	1000	X5B(9)
10	I rarely feel stressed	46.05	0	100	29.2	1000	X5B(10)
Belonging and friendship							
B							
B							
11	I have a good family life	79.30	0	100	23.2	1000	X5B(11)
12	Security is of concern to me	72.15	0	100	27.4	1000	X5B(12)
13	I am hardly ever lonely	68.85	0	100	28.68	1000	X5B(13)
Levels of activity							
B							
B							
14	I am always busy	78.55	0	100	24.4	1000	X5B(14)
Fun and going out							
B							
B							
15	I have a full social life	62.00	0	100	27.93	1000	X5B(15)
16	I like crowds	47.13	0	100	30.48	1000	X5B(16)
17	I am hardly ever bored	68.60	0	100	26.53	1000	X5B(17)
Risk							
B							
B							
18	Taking risks gives me a thrill	45.90	0	100	30.9	1000	X5B(18)
Trust							
B							
B							
19	I believe most people can be trusted	46.23	0	100	27.18	1000	X5B(19)
Income							
B							
B							
20	I always have enough money to go around	52.48	0	100	29.7	1000	X5B(20)
21	I buy luxuries	42.33	0	100	28.9	1000	X5B(21)
Shopping							
B							
B							
22	I am a spender, not a saver	48.80	0	100	30.13	1000	X5B(22)
Thinking about your suburb or region							
B							
B							
23	Overall, this is a good suburb or region to live in	73.58	0	100	24.55	1000	X5B(23)
24	The local economy is good	55.23	0	100	24.68	1000	X5B(24)
25	The local shops are doing well financially	52.00	0	100	24.63	1000	X5B(25)
26	There is a real sense of community around here	63.13	0	100	25.4	1000	X5B(26)
27	It is safe around here	60.65	0	100	26.2	1000	X5B(27)
28	There is no crime around here	33.28	0	100	26.3	1000	X5B(28)
29	There is plenty of work around here	39.65	0	100	26.73	1000	X5B(29)
30	People play sport around here	73.70	0	100	21.13	1000	X5B(30)
Thinking about your life 3 years ago							
B							
B							
31	I was living in this suburb or region 3 years ago	78.33	0	100	29.85	1000	X5B(31)
B							

VCGA Gaming Survey		mean	min1	max	std	number	variable
ref: VCGA99-BDT09-Reports.xls							
Life in general							B
							B
32	I am happier than I was 3 years ago	67.40	0	100	26.33	1000	X5B(32)
33	The Australian economy is better now than it was 3 years ago	60.78	0	100	24.33	1000	X5B(33)
34	My family's financial situation is better than it was 3 years ago	61.28	0	100	26.93	1000	X5B(34)
35	I am healthier now than I was 3 years ago	54.73	0	100	27.03	1000	X5B(35)
36	I feel less stressed now than I did 3 years ago	51.93	0	100	28.93	1000	X5B(36)
							B
Belonging and friendship							B
							B
37	I have a better family life now than I did 3 years ago	60.33	0	100	25.75	1000	X5B(37)
38	I am less concerned with security now than I was 3 years ago	45.73	0	100	27.3	1000	X5B(38)
39	I am less lonely now than I was 3 years ago	54.23	0	100	26.18	1000	X5B(39)
							B
Levels of activity							B
							B
40	I am busier now than I was 3 years ago	66.00	0	100	28.1	1000	X5B(40)
							B
Fun and going out							B
							B
41	I have a better social life now than I did 3 years ago	53.13	0	100	26.88	1000	X5B(41)
42	I am less bored now than I was 3 years ago	58.08	0	100	24.3	1000	X5B(42)
							B
Risk							B
							B
43	I take more risks now than I did 3 years ago	43.63	0	100	27.2	1000	X5B(43)
							B
Trust							B
							B
44	I trust people more now than I did 3 years ago	38.13	0	100	23.08	1000	X5B(44)
							B
Income							B
							B
45	My money goes further now than it did 3 years ago	37.38	0	100	30.75	1000	X5B(45)
46	I buy more luxuries now than I did 3 years ago	37.58	0	100	29.05	1000	X5B(46)
							B
Thinking about your suburb or region compared to how it was 3 years ago							B
							B
47	This suburb or region is better to live in now than 3 years ago	53.05	0	100	22.75	1000	X5B(47)
48	The local economy is better now than it was 3 years ago	51.18	0	100	22.3	1000	X5B(48)
49	The local shops are doing better financially than they were 3 years ago	49.63	0	100	23.5	1000	X5B(49)
50	There is a better sense of community around here now than there was 3 years ago	53.38	0	100	21.55	1000	X5B(50)
51	It is safer around here now than 3 years ago	43.25	0	100	21.53	1000	X5B(51)
52	There is less crime around here than 3 years ago	38.93	0	100	23.25	1000	X5B(52)
53	There is more work around here than there was 3 years ago	43.55	0	100	24.55	1000	X5B(53)
54	People play more sport around here than they did 3 years ago	53.20	0	100	20.63	1000	X5B(54)
							B
Gaming- explain that gaming is electronic gaming machines or pokies and the games played at the casino							B
							B
55	There is more gaming in our suburb or region than there was 3 years ago	79.78	0	100	23.43	1000	X5B(55)
56	I think electronic gaming (or pokies) have been good for our suburb or region	26.90	0	100	25.8	1000	X5B(56)
57	Gaming has increased employment in our suburb or region	49.15	0	100	28.83	1000	X5B(57)
58	Gaming has improved social life in our suburb or region	35.78	0	100	27.15	1000	X5B(58)
59	Gaming has improved family life in our suburb or region	19.50	0	100	20.8	1000	X5B(59)
60	The casino has been good for our suburb or region	30.98	0	100	26.18	1000	X5B(60)
61	There are not enough gaming machines in our suburb or region	13.70	0	100	20.35	1000	X5B(61)
62	Gambling related problems have got worse in the last 3 years	79.90	0	100	25.33	1000	X5B(62)
63	Gambling does more good for the Community than harm	19.78	0	100	22.43	1000	X5B(63)
64	Gambling is a serious social problem	79.60	0	100	25.5	1000	X5B(64)
65	Have you, yourself or any of your family ever experienced difficulties with excessive gambling	10.50	0	100	30.7	998	X2B(65)
66	(IF YES TO ABOVE) Was that during the last 6 months or more than 6 months ago	69.50	0	100	46.3	105	X2B(66)
67	Have you participated in any gambling activities in the last 6 months	51.30	0	100	50	1000	X2B(67)
							B

VCGA Gaming Survey		mean	min1	max	std	number	variable	
ref: VCGA99-BDT09-Reports.xls								
PART D - GAMING							B	
							B	
	1	Would you say you are satisfied or dissatisfied with your experience of playing table games at Crown Casino (very satisfied=100)	65.38	0	100	24.98	117	X5D(1)
	2	Each day you play table games at Crown Casino, how much time do you spend at the gaming tables (record time in minutes)	76.00	2	360	82.59	117	XND(2)
	3	Each day you play table games at Crown Casino, on average, how much money do you spend or outlay (record amount in dollars)	98.67	2	550	111.34	117	XND(3)
	4	Would you say you are satisfied or dissatisfied with your experience of playing the pokies (satisfied=100)	46.68	0	100	29.3	460	X5D(4)
	5	Each day you play the pokies, how much time do you spend playing the machines (record time in minutes)	54.64	1	480	56.63	460	XND(5)
	6	Each day you play the pokies, on average, how much money do you spend or outlay (record amount in dollars)	45.61	1	9999	465.8	460	XND(6)
	7	What are the main motivations, attractions or reasons you play the pokies?						B
	a	Thrill/dream rewards of winning	14.60	0	100	35.3	460	X2D7(1)
	b	Atmosphere/excitement/gives a buzz	9.30	0	100	29.1	460	X2D7(2)
	c	Beating the odds/back a winner	3.30	0	100	17.8	460	X2D7(3)
	d	Exchange of money/handling money	0.20	0	100	4.7	460	X2D7(4)
	e	Upbringing/family background	0.40	0	100	6.6	460	X2D7(5)
	f	Ego/self esteem	0.00	0	0	0	460	X2D7(6)
	g	Favourite recreational activity/hobby	9.30	0	100	29.1	460	X2D7(7)
	h	Social reasons/see friends	45.40	0	100	49.8	460	X2D7(8)
	i	Compulsions/addiction	0.90	0	100	9.3	460	X2D7(9)
	j	Like taking risks/risk taker	0.40	0	100	6.6	460	X2D7(10)
	k	Belief in luck/may get lucky	12.60	0	100	33.2	460	X2D7(11)
	l	Want to be successful	2.40	0	100	15.3	460	X2D7(12)
	m	Boredom/pass time	22.20	0	100	41.6	460	X2D7(13)
	n	Other (specify)	7.20	0	100	25.8	460	X2D7(14)
	o	(Don't know)	1.30	0	100	11.4	460	X2D7(15)
								B
		I play the pokies:						B
								B
	8	For the thrill/dream of winning	51.15	0	100	34.3	460	X5D(8)
	9	Because it is a favourite recreational activity/hobby	27.13	0	100	28.15	460	X5D(9)
	10	Out of boredom to pass the time	37.45	0	100	31.93	460	X5D(10)
	11	Because I like to beat the odds/back a winner	36.30	0	100	30.08	460	X5D(11)
	12	Because I believe I may get lucky	55.50	0	100	32.4	460	X5D(12)
	13	To test my skill	21.43	0	100	24.05	460	X5D(13)
	14	To make a quick buck	40.70	0	100	34.65	460	X5D(14)
	15	Because I like to take risks	33.25	0	100	28.43	460	X5D(15)
	16	To enhance my social standing	19.30	0	100	21.55	460	X5D(16)
	17	Because the money lost goes to a worthy cause	16.35	0	100	22.15	460	X5D(17)
	18	For social reasons; to be with friends	58.93	0	100	29.88	460	X5D(18)
	19	Because the atmosphere and excitement gives me a buzz	34.25	0	100	28.43	460	X5D(19)
	20	Because I am attracted to the venue itself	35.23	0	100	28.43	460	X5D(20)
								B

VCGA Gaming Survey		mean	min1	max	std	number	variable
ref: VCGA99-BDT09-Reports.xls							
Other gambling questions							B
	Thinking of the last week in which you spent money on pokies or table games. If you hadn't spent the money on gambling, could you please tell me in what other ways you might have used it? (Don't read out, circle yes as appropriate)						B
21	Spent it on groceries or small household items	22.70	0	100	42	488	X2D(21)
22	Put it towards major household goods (eg. TV, refrigerator)	4.30	0	100	20.3	488	X2D(22)
23	Spent it on personal items (eg. clothing, footwear)	22.50	0	100	41.8	488	X2D(23)
24	Spent it on restaurant meals	12.10	0	100	32.6	488	X2D(24)
25	Spent it on wine, beer, etc	10.00	0	100	30.1	488	X2D(25)
26	Spent it on the movies or a concert	5.70	0	100	23.3	488	X2D(26)
27	Spent it on other entertainment or recreation activities	18.90	0	100	39.2	488	X2D(27)
28	Used it to pay bills/credit cards	5.90	0	100	23.7	488	X2D(28)
29	Used it to pay rent/mortgage	1.60	0	100	12.7	488	X2D(29)
30	Spent it on other items (please specify)	11.90	0	100	32.4	488	X2D(30)
31	Not spent it/Saved it/Put it in the bank	19.90	0	100	39.9	488	X2D(31)
32	(Don't know)	2.50	0	100	15.5	488	X2D(32)
	Which type of venue do you play pokies at (MULTIPLE RESPONSE):						B
33	Pub/hotel	42.00	0	100	49.4	460	X2D(33)
34	Licensed sports club (golf, football, bowls etc)	27.00	0	100	44.4	460	X2D(34)
35	RSL Club	18.00	0	100	38.5	460	X2D(35)
36	Some other sort of licensed club	15.90	0	100	36.6	460	X2D(36)
37	Melbourne Crown Casino	22.60	0	100	41.9	460	X2D(37)
38	Or somewhere else (specify)	1.70	0	100	13.1	460	X2D(38)
	Which type of venue do you go to the most to play pokies (single response):						B
40	Pub/hotel	35.90	0	100	48	460	X2D(40)
41	Licensed sports club (golf, football, bowls etc)	21.70	0	100	41.3	460	X2D(41)
42	RSL Club	13.90	0	100	34.6	460	X2D(42)
43	Some other sort of licensed club	11.70	0	100	32.2	460	X2D(43)
44	Melbourne Crown Casino	15.70	0	100	36.4	460	X2D(44)
45	Or somewhere else (specify)	1.10	0	100	10.4	460	X2D(45)
	Thinking of the last time you played the pokies at a club or pub (not including Crown Casino)						B
47	How far did you travel to get to this venue? (km)	2.52	1	6	1.64	426	XND(47)
48	Did you go to this venue						B
	* From home	32.20	0	100	46.7	1000	X2START(1)
	* On the way to or from work	2.10	0	100	14.3	1000	X2START(2)
	* From somewhere else	9.00	0	100	28.6	1000	X2START(3)
49	I visit that venue more than other venues	53.53	0	100	34.75	433	X5D(49)
50	I really like visiting the venue	54.80	0	100	28.18	433	X5D(50)
51	I have lots of good luck there	28.75	0	100	24.15	433	X5D(51)
52	It is enjoyable and thrilling	44.28	0	100	27.28	433	X5D(52)
53	I had a meal	59.30	0	100	34.93	433	X5D(53)
	I went to the venue..						B
54	to relax	64.90	0	100	27.7	433	X5D(54)
55	because it is easy to get to	66.23	0	100	27.98	433	X5D(55)
56	because it is open all hours	41.75	0	100	28.7	433	X5D(56)
57	because it has all the entertainment I need under one roof	47.98	0	100	31.15	433	X5D(57)
58	because it is a good place to socialise	53.70	0	100	29.23	433	X5D(58)
59	because it is a good place to drink	44.23	0	100	32.03	433	X5D(59)
60	because it is a good place to gamble	43.18	0	100	28.6	433	X5D(60)
61	because there are good meals and restaurants	65.30	0	100	26.98	433	X5D(61)
62	because it has the sort of pokies I like	44.10	0	100	29.28	433	X5D(62)
63	because it has lots of pokies	39.78	0	100	27.65	433	X5D(63)
	On your last visit to a gaming venue						B
64	What time did you arrive:						B
	8 am to 12 noon	6.10	0	100	24	488	X2TIME(1)
	12 noon to 4 pm	18.60	0	100	39	488	X2TIME(2)
	4 pm to 8 pm	42.80	0	100	49.5	488	X2TIME(3)
	8 pm to midnight	28.90	0	100	45.4	488	X2TIME(4)
	midnight to 4 am	2.70	0	100	16.1	488	X2TIME(5)
	4 am to 8 am	0.80	0	100	9	488	X2TIME(6)

VCGA Gaming Survey						mean	min1	max	std	number	variable
ref: VCGA99-BDT09-Reports.xls											
	65	How long did you stay(hours)	2.45	1	7	1.24	488	XND(65)			
		Thinking about when you last played the pokies						B			
	66	How much did you win? (a lot=100)	40.18	0	100	27.05	460	X5D(66)			
	67	I had really good luck	34.83	0	100	30.3	460	X5D(67)			
	68	I enjoyed myself	62.73	0	100	25.7	460	X5D(68)			
		I would game more if:						B			
	69	There was a more conveniently located venue	22.28	0	100	23.03	488	X5D(69)			
	70	The venue was more attractive and comfortable	25.78	0	100	24.63	488	X5D(70)			
	71	The venue was open longer	19.63	0	100	18.83	488	X5D(71)			
	72	There were more machines available	20.18	0	100	20.83	488	X5D(72)			
	73	There was more variety in the types of machines available	26.48	0	100	25.68	488	X5D(73)			
								B			
								B			
								B			
		Which any of these statements applied to you personally in the last 6 months.						B			
	1	When you gamble, how often do you go back another day to win back money you lost?	1.17	1	4	0.48	649	XNE(1)			
	2	Have you ever claimed to be WINNING money when you really had lost?	1.10	1	4	0.38	649	XNE(2)			
	3	Do you feel you have had a problem with gambling or that your gambling was out of control?	1.10	1	4	0.41	649	XNE(3)			
								B			
		The following questions still relate to the last 6 months and only require a yes or no answer.						B			
	4	Did you gamble more than you intended to?	19.60	0	100	39.7	648	X2E(4)			
	5	Have people criticised your gambling?	6.60	0	100	24.9	649	X2E(5)			
	6	Have you felt guilty about the way you gamble or what happens when you gamble?	12.60	0	100	33.2	649	X2E(6)			
	7	Have you felt that you would like to stop gambling but didn't think you could?	3.40	0	100	18.2	640	X2E(7)			
	8	Have you hidden betting slips, gambling money or any other sign of gambling from your partner, children or other important people in your life?	3.40	0	100	18.1	649	X2E(8)			
	9	Have you ever argued with people you live with about how you generally handle money?	14.60	0	100	35.4	649	X2E(9)			
	10	Have money arguments ever centred on your gambling?	15.80	0	100	36.7	95	X2E(10)			
	11	Have you borrowed money from someone and not paid them back because of your gambling?	0.90	0	100	9.6	648	X2E(11)			
	12	Have you lost time from work or study because of gambling?	0.80	0	100	8.8	648	X2E(12)			
	13	Have you ever borrowed money to gamble or pay off gambling debts?	2.50	0	100	15.5	648	X2E(13)			
	14	Have you ever borrowed money to gamble or to pay gambling debts from household money?	2.00	0	100	14	648	X2E(14)			
	15	Have you borrowed money to gamble or to pay gambling debts from your spouse or partner?	1.70	0	100	12.9	648	X2E(15)			
	16	(Have you borrowed money to gamble or to pay gambling debts) from other relatives or in-laws?	0.80	0	100	8.8	646	X2E(16)			
	17	(Have you borrowed money to gamble or to pay gambling debts) from banks, finance companies or credit unions?	0.30	0	100	5.6	648	X2E(17)			
	18	(Have you borrowed money to gamble or to pay gambling debts) from credit cards?	1.50	0	100	12.3	648	X2E(18)			
	19	(Have you borrowed money to gamble or to pay gambling debts) from high interest rate finance companies?	0.00	0	0	0	648	X2E(19)			
	20	(Have you borrowed money to gamble or to pay gambling debts) from cashing in stocks, bonds or other securities?	0.60	0	100	7.8	648	X2E(20)			
	21	(Have you borrowed money to gamble or to pay gambling debts) from selling personal or company property?	0.50	0	100	6.8	648	X2E(21)			
	22	(Have you borrowed money to gamble or to pay gambling debts) by writing cheques knowing there was no money in the account?	0.00	0	0	0	647	X2E(22)			
								B			
		SOGs score	0.48	0	13	1.24	1000	SOG			
		No risk (score<=4)	98.00	0	100	14	1000	X2SOG(1)			
		One in 5 risk (score>=5 and score<=6)	1.30	0	100	11.3	1000	X2SOG(2)			
		One in 2 risk (score>=7 and score<=9)	0.40	0	100	6.3	1000	X2SOG(3)			
		One in 1 risk (score>=10)	0.30	0	100	5.5	1000	X2SOG(4)			
								B			

VCGA Gaming Survey							
ref: VCGA99-BDT09-Reports.xls							
		mean	min1	max	std	number	variable
PART A - SAMPLE AND DEMOGRAPHICS							
							B
							B
	1	51.10	0	100	50	1000	X2A(1)
	2						B
							B
		16.70	0	100	37.3	1000	X2LOC(1)
		16.70	0	100	37.3	1000	X2LOC(2)
		16.70	0	100	37.3	1000	X2LOC(3)
		16.70	0	100	37.3	1000	X2LOC(4)
		16.60	0	100	37.2	1000	X2LOC(5)
		16.60	0	100	37.2	1000	X2LOC(6)
							B
	1	56.50	0	100	49.6	1000	X2F(1)
	2	36.20	0	100	48.1	1000	X2F(2)
	3	38.20	0	100	48.6	1000	X2F(3)
	4	62.90	0	100	48.3	1000	X2F(4)
	5	3.92	1	9	1.73	1000	XNF(5)
		50.10	0	100	50	1000	X2ED(1)
		23.40	0	100	42.4	1000	X2ED(2)
		14.40	0	100	35.1	1000	X2ED(3)
		12.10	0	100	32.6	1000	X2ED(4)
							B
	6						B
							B
		43.00	0	100	49.5	1000	X2JOB(1)
		18.90	0	100	39.2	1000	X2JOB(2)
		8.30	0	100	27.6	1000	X2JOB(3)
		5.10	0	100	22	1000	X2JOB(4)
		9.60	0	100	29.5	1000	X2JOB(5)
		11.60	0	100	32	1000	X2JOB(6)
		65.30	0	100	47.6	1000	X2JOB(7)
		34.60	0	100	47.6	1000	X2JOB(8)
	7						B
							B
							B
		7.10	0	100	25.7	1000	X2OCC(1)
		10.40	0	100	30.5	1000	X2OCC(2)
		13.10	0	100	33.8	1000	X2OCC(3)
		27.40	0	100	44.6	1000	X2OCC(4)
		11.00	0	100	31.3	1000	X2OCC(5)
	8	1.20	0	100	10.9	1000	X2OCC(6)
	9						B
	10	29.95	0	100	40.35	1000	X3F(9)
		60.60	0	100	48.9	1000	X2LANG(1)
		18.90	0	100	39.2	1000	X2LANG(2)
		20.50	0	100	40.4	1000	X2LANG(3)
		0.00	0	0	0	1000	X2LANG(4)
		0.00	0	0	0	1000	X2LANG(5)
		0.00	0	0	0	1000	X2LANG(6)
		0.00	0	0	0	1000	X2LANG(7)
		0.00	0	0	0	1000	X2LANG(8)
	11	43.61	18	75	15.72	1000	AGE
	12	32.25	5	112.5	22.79	922	INCOME
		1000.00					Number

Appendix 4: Percentage agree scores

Note: Only those questions with rating scales have been included.

VCGA Gaming Survey		%Agree	%Neutral	%Disagree	number	variable
ref: VCGA99-BDT09-Reports.xls						
PART B - PERSONAL VALUES						
Life in general						
1	I am really happy with life	74.4	18.9	6.7	1000	X5B(1)
2	The Australian economy is doing well	39.1	34.8	26.1	1000	X5B(2)
3	The Australian economy is getting better	36.3	39.3	24.4	1000	X5B(3)
4	My life will be better in the next year than it was last year	61.2	26.8	12.0	1000	X5B(4)
5	My family's financial situation is good	63.7	21.2	15.1	1000	X5B(5)
6	I feel that where I end up in life will be more a matter of luck than planning	34.1	16.0	49.9	1000	X5B(6)
7	I believe rules should never be broken	39.4	23.9	36.7	1000	X5B(7)
8	I seek out the latest things	35.7	27.0	37.3	1000	X5B(8)
9	I am healthy	77.3	12.0	10.7	1000	X5B(9)
10	I rarely feel stressed	34.3	20.9	44.8	1000	X5B(10)
Belonging and friendship						
11	I have a good family life	84.8	8.6	6.6	1000	X5B(11)
12	Security is of concern to me	74.2	11.1	14.7	1000	X5B(12)
13	I am hardly ever lonely	68.8	13.2	18.0	1000	X5B(13)
Levels of activity						
14	I am always busy	80.6	11.2	8.2	1000	X5B(14)
Fun and going out						
15	I have a full social life	57.2	21.4	21.4	1000	X5B(15)
16	I like crowds	33.3	25.0	41.7	1000	X5B(16)
17	I am hardly ever bored	68.8	16.2	15.0	1000	X5B(17)
Risk						
18	Taking risks gives me a thrill	33.9	21.9	44.2	1000	X5B(18)
Trust						
19	I believe most people can be trusted	33.1	26.8	40.1	1000	X5B(19)
Income						
20	I always have enough money to go around	46.6	18.7	34.7	1000	X5B(20)
21	I buy luxuries	29.6	21.0	49.4	1000	X5B(21)
Shopping						
22	I am a spender, not a saver	33.6	25.3	41.1	1000	X5B(22)
Thinking about your suburb or region						
23	Overall, this is a good suburb or region to live in	78.3	12.2	9.5	1000	X5B(23)
24	The local economy is good	44.6	31.3	24.1	1000	X5B(24)
25	The local shops are doing well financially	35.9	37.5	26.6	1000	X5B(25)
26	There is a real sense of community around here	59.5	23.0	17.5	1000	X5B(26)
27	It is safe around here	57.4	22.0	20.6	1000	X5B(27)
28	There is no crime around here	15.6	22.1	62.3	1000	X5B(28)
29	There is plenty of work around here	21.5	28.9	49.6	1000	X5B(29)
30	People play sport around here	79.0	14.4	6.6	1000	X5B(30)
Thinking about your life 3 years ago						
31	I was living in this suburb or region 3 years ago	84.9	1.9	13.2	1000	X5B(31)

VCGA Gaming Survey						
ref: VCGA99-BDT09-Reports.xls						
		%Agree	%Neutral	%Disagree	number	variable
Life in general						
						B
						B
32	I am happier than I was 3 years ago	60.6	26.0	13.4	1000	X5B(32)
33	The Australian economy is better now than it was 3 years ago	52.0	31.6	16.4	1000	X5B(33)
34	My family's financial situation is better than it was 3 years ago	54.6	26.1	19.3	1000	X5B(34)
35	I am healthier now than I was 3 years ago	38.2	35.8	26.0	1000	X5B(35)
36	I feel less stressed now than I did 3 years ago	39.9	25.4	34.7	1000	X5B(36)
						B
Belonging and friendship						
						B
						B
37	I have a better family life now than I did 3 years ago	46.8	35.7	17.5	1000	X5B(37)
38	I am less concerned with security now than I was 3 years ago	28.0	31.0	41.0	1000	X5B(38)
39	I am less lonely now than I was 3 years ago	36.0	38.1	25.9	1000	X5B(39)
						B
Levels of activity						
						B
						B
40	I am busier now than I was 3 years ago	60.6	20.4	19.0	1000	X5B(40)
						B
Fun and going out						
						B
						B
41	I have a better social life now than I did 3 years ago	35.4	36.3	28.3	1000	X5B(41)
42	I am less bored now than I was 3 years ago	42.8	38.6	18.6	1000	X5B(42)
						B
Risk						
						B
						B
43	I take more risks now than I did 3 years ago	26.1	26.3	47.6	1000	X5B(43)
						B
Trust						
						B
						B
44	I trust people more now than I did 3 years ago	12.8	38.2	49.0	1000	X5B(44)
						B
Income						
						B
						B
45	My money goes further now than it did 3 years ago	25.2	16.3	58.5	1000	X5B(45)
46	I buy more luxuries now than I did 3 years ago	23.3	19.5	57.2	1000	X5B(46)
						B
Thinking about your suburb or region compared to how it was 3 years ago						
						B
						B
47	This suburb or region is better to live in now than 3 years ago	30.7	48.5	20.8	1000	X5B(47)
48	The local economy is better now than it was 3 years ago	30.9	44.9	24.2	1000	X5B(48)
49	The local shops are doing better financially than they were 3 years ago	29.5	42.3	28.2	1000	X5B(49)
50	There is a better sense of community around here now than there was 3 years ago	32.2	48.2	19.6	1000	X5B(50)
51	It is safer around here now than 3 years ago	15.7	47.7	36.6	1000	X5B(51)
52	There is less crime around here than 3 years ago	14.2	38.6	47.2	1000	X5B(52)
53	There is more work around here than there was 3 years ago	21.5	39.9	38.6	1000	X5B(53)
54	People play more sport around here than they did 3 years ago	27.3	55.9	16.8	1000	X5B(54)
						B
Gaming- explain that gaming is electronic gaming machines or pokies and the games played at the casino						
						B
						B
55	There is more gaming in our suburb or region than there was 3 years ago	81.3	12.7	6.0	1000	X5B(55)
56	I think electronic gaming (or pokies) have been good for our suburb or region	10.1	21.6	68.3	1000	X5B(56)
57	Gaming has increased employment in our suburb or region	39.7	26.1	34.2	1000	X5B(57)
58	Gaming has improved social life in our suburb or region	19.1	24.9	56.0	1000	X5B(58)
59	Gaming has improved family life in our suburb or region	3.1	14.3	82.6	1000	X5B(59)
60	The casino has been good for our suburb or region	10.8	30.0	59.2	1000	X5B(60)
61	There are not enough gaming machines in our suburb or region	3.0	8.4	88.6	1000	X5B(61)
62	Gambling related problems have got worse in the last 3 years	82.3	10.1	7.6	1000	X5B(62)
63	Gambling does more good for the Community than harm	4.5	14.5	81.0	1000	X5B(63)
64	Gambling is a serious social problem	82.0	8.8	9.2	1000	X5B(64)
65	Have you, yourself or any of your family ever experienced difficulties with excessive gambling	10.5	0.0	89.5	998	X2B(65)
66	(IF YES TO ABOVE) Was that during the last 6 months or more than 6 months ago	69.5	0.0	30.5	105	X2B(66)
67	Have you participated in any gambling activities in the last 6 months	51.3	0.0	48.7	1000	X2B(67)
						B

VCGA Gaming Survey		%Agree	%Neutral	%Disagree	number	variable
ref: VCGA99-BDT09-Reports.xls						
	On your last visit to a gaming venue					B
64	What time did you arrive:					B
	8 am to 12 noon	6.1	0.0	93.9	488	X2TIME(1)
	12 noon to 4 pm	18.6	0.0	81.4	488	X2TIME(2)
	4 pm to 8 pm	42.8	0.0	57.2	488	X2TIME(3)
	8 pm to midnight	28.9	0.0	71.1	488	X2TIME(4)
	midnight to 4 am	2.7	0.0	97.3	488	X2TIME(5)
	4 am to 8 am	0.8	0.0	99.2	488	X2TIME(6)
65	How long did you stay (hours)					XND(65)
	Thinking about when you last played the pokies					B
66	How much did you win? (alot=100)	23.7	18.5	57.8	460	X5D(66)
67	I had really good luck	21.8	14.6	63.7	460	X5D(67)
68	I enjoyed myself	63.1	20.9	16.0	460	X5D(68)
	I would game more if:					B
69	There was a more conveniently located venue	6.7	12.3	80.9	488	X5D(69)
70	The venue was more attractive and comfortable	10.7	11.3	78.1	488	X5D(70)
71	The venue was open longer	3.5	7.6	89.0	488	X5D(71)
72	There were more machines available	5.1	7.8	87.1	488	X5D(72)
73	There was more variety in the types of machines available	13.1	10.2	76.7	488	X5D(73)
PART E						
	Which any of these statements applied to you personally in the last 6 months.					B
	The following questions still relate to the last 6 months and only require a yes or no answer.					B
4	Did you gamble more than you intended to?	19.6	0.0	80.4	648	X2E(4)
5	Have people criticised your gambling?	6.6	0.0	93.4	649	X2E(5)
6	Have you felt guilty about the way you gamble or what happens when you gamble?	12.6	0.0	87.4	649	X2E(6)
7	Have you felt that you would like to stop gambling but didn't think you could?	3.4	0.0	96.6	640	X2E(7)
8	Have you hidden betting slips, gambling money or any other sign of gambling from your partner, children or other important people in your life?	3.4	0.0	96.6	649	X2E(8)
9	Have you ever argued with people you live with about how you generally handle money?	14.6	0.0	85.4	649	X2E(9)
10	Have money arguments ever centred on your gambling?	15.8	0.0	84.2	95	X2E(10)
11	Have you borrowed money from someone and not paid them back because of your gambling?	0.9	0.0	99.1	648	X2E(11)
12	Have you lost time from work or study because of gambling?	0.8	0.0	99.2	648	X2E(12)
13	Have you ever borrowed money to gamble or pay off gambling debts?	2.5	0.0	97.5	648	X2E(13)
14	Have you ever borrowed money to gamble or to pay gambling debts from household money?	2.0	0.0	98.0	648	X2E(14)
15	Have you borrowed money to gamble or to pay gambling debts from your spouse or partner?	1.7	0.0	98.3	648	X2E(15)
16	(Have you borrowed money to gamble or to pay gambling debts) from other relatives or in-laws?	0.8	0.0	99.2	646	X2E(16)
17	(Have you borrowed money to gamble or to pay gambling debts) from banks, finance companies or credit unions?	0.3	0.0	99.7	648	X2E(17)
18	(Have you borrowed money to gamble or to pay gambling debts) from credit cards?	1.5	0.0	98.5	648	X2E(18)
19	(Have you borrowed money to gamble or to pay gambling debts) from high interest rate finance companies?	0.0	0.0	100.0	648	X2E(19)
20	(Have you borrowed money to gamble or to pay gambling debts) from cashing in stocks, bonds or other securities?	0.6	0.0	99.4	648	X2E(20)
21	(Have you borrowed money to gamble or to pay gambling debts) from selling personal or company property?	0.5	0.0	99.5	648	X2E(21)
22	(Have you borrowed money to gamble or to pay gambling debts) by writing cheques knowing there was no money in the account?	0.0	0.0	100.0	647	X2E(22)
	SOGs score					B
	No risk (score=4)	98.0	0.0	2.0	1000	X2SOG(1)
	One in 5 risk (score=5 and score=6)	1.3	0.0	98.7	1000	X2SOG(2)
	One in 2 risk (score=7 and score=9)	0.4	0.0	99.6	1000	X2SOG(3)
	One in 1 risk (score=10)	0.3	0.0	99.7	1000	X2SOG(4)
						B

VCGA Gaming Survey						
ref: VCGA99-BDT09-Reports.xls						
		%Agree	%Neutral	%Disagree	number	variable
PART A - SAMPLE AND DEMOGRAPHICS						
						B
						B
1	Gender (male=0 female=100)	51.1	0.0	48.9	1000	X2A(1)
2	Region					B
	Dandenong	16.7	0.0	83.3	1000	X2LCC(1)
	Geelong	16.7	0.0	83.3	1000	X2LCC(2)
	Martindrong	16.7	0.0	83.3	1000	X2LCC(3)
	Mildura	16.7	0.0	83.3	1000	X2LCC(4)
	Moreland	16.6	0.0	83.4	1000	X2LCC(5)
	Wellington/ South Gippsland	16.6	0.0	83.4	1000	X2LCC(6)
						B
1	Do you live with a partner or spouse? (No=0 Yes=100)	56.5	0.0	43.5	1000	X2F(1)
2	Do you have dependent children living at home? (No=0 Yes=100)	36.2	0.0	63.8	1000	X2F(2)
3	Do you receive a government pension or benefit? (No=0 Yes=100)	38.2	0.0	61.8	1000	X2F(3)
4	Are you the main income earner? (No=0 Yes=100)	62.9	0.0	37.1	1000	X2F(4)
5	Highest education level? (1=primary 4=year 12 7=degree)					XNF(5)
	Less than year 12	50.1	0.0	49.9	1000	X2ED(1)
	Year 12	23.4	0.0	76.6	1000	X2ED(2)
	Trade or diploma	14.4	0.0	85.6	1000	X2ED(3)
	Degree	12.1	0.0	87.9	1000	X2ED(4)
						B
6	Work status?					B
	* Work full time (for money)	43.0	0.0	57.0	1000	X2JOB(1)
	* Work part time (for money)	18.9	0.0	81.1	1000	X2JOB(2)
	* Household duties only	8.3	0.0	91.7	1000	X2JOB(3)
	* Full time student	5.1	0.0	94.9	1000	X2JOB(4)
	* Retired (self supporting)	9.6	0.0	90.4	1000	X2JOB(5)
	* Other pensioner	11.6	0.0	88.4	1000	X2JOB(6)
	* Unemployed	65.3	0.0	34.7	1000	X2JOB(7)
		34.6	0.0	65.4	1000	X2JOB(8)
7	What is (was) your occupation?					B
	Un-s killed Blue Collar					B
	Semi-s killed Blue Collar	7.1	0.0	92.9	1000	X2OCC(1)
	S killed Blue Collar	10.4	0.0	89.6	1000	X2OCC(2)
	Lower White Collar	13.1	0.0	86.9	1000	X2OCC(3)
	Upper White Collar	27.4	0.0	72.6	1000	X2OCC(4)
	Senior Upper White Collar	11.0	0.0	89.0	1000	X2OCC(5)
8	What industry do (did) you work in?	1.2	0.0	98.8	1000	X2OCC(6)
9	Were you or your parents born overseas?	20.5	18.9	60.6	1000	B
10	What was the main languages spoken at home when you were growing up?					X3F(9)
	English	60.6	0.0	39.4	1000	X2LANG(1)
	Mandarin	18.9	0.0	81.1	1000	X2LANG(2)
	Cantonese	20.5	0.0	79.5	1000	X2LANG(3)
	Vietnamese	0.0	0.0	100.0	1000	X2LANG(4)
	Spanish	0.0	0.0	100.0	1000	X2LANG(5)
	Italian	0.0	0.0	100.0	1000	X2LANG(6)
	Greek	0.0	0.0	100.0	1000	X2LANG(7)
	Other	0.0	0.0	100.0	1000	X2LANG(8)
						Number

Victorian Casino and Gaming Authority

Supporting Paper No. 2:
Empirical analysis of regional
gaming expenditure

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1 Summary of findings

In this paper¹ we have explored econometrically the relationship between net gaming expenditure in a region and a range of factors, including the size of the region, the availability of gaming in terms of numbers of venues and machines, and individual demand factors. The principal findings are summarised below.

Gaming and EGM numbers and venues

The amount of money wagered on electronic gaming machines (EGMs) is positively affected by the number of hotels and clubs with gaming machines, and the number of EGMs in a region. Specifically:

- a 10 per cent increase in EGMs gives rise to an 8 per cent increase in per capita² gaming expenditure. This result is obtained using time-series cross-sectional data for Victorian regions and is lower than the Productivity Commission's estimate of a 15 per cent per capita increase, based on Queensland data which used cross-sectional methodology with no time series component;³
- whilst a 10 per cent increase in EGM numbers has the same proportionate effect on gaming expenditure in any region of Victoria, the absolute impact varies. There are also (empirically verifiable) structural differences in the relationship between net gaming expenditure, the number of EGMs, and the number of hotels and clubs with gaming machines, from one region to the next;
- on average, the opening of a new "pokies" club (or the introduction of EGMs to an existing non-gaming venue) holding the number of EGMs in the region constant, causes a \$0.50 increase in quarterly per capita gaming expenditure in the region in question. The introduction of a new hotel gaming venue results in a \$0.56 increase in regional quarterly per capita gaming expenditure. In other words, redistributing a given number of poker machines across an additional venue leads to an increase in per capita gaming expenditure.

Although gaming expenditure is primarily affected by EGM numbers, there is also evidence of a two-way flow, with the number of EGMs being influenced, in turn, by the amount of gaming activity. Tests for exogeneity of the explanatory variable (EGMs) reveal that this two-way flow has been more pronounced for clubs in recent years, whilst from 1995 to 1997 it was more pronounced for hotels.

¹ This paper was prepared by KPMG and reviewed by Dr John Shannon, Senior Lecturer in Econometrics, RMIT University.

² Defined as the adult population, 18 years and over.

³ Productivity Commission, Australia's Gambling Industries: Draft Report, 1999. The Productivity Commission's final report also provided estimates for NSW and South Australia. Differences between the results obtained by the Productivity Commission and KPMG are likely to reflect a number of factors including differences in gaming expenditure between Queensland and Victoria and differences in the time period and methodology used in the KPMG and Productivity Commission analysis.

In general terms, the result that EGM numbers are not independent of gaming expenditure is intuitive. In individual gaming venues, the number of EGMs in commission is responsive to the turnover of existing machines: new machines may be installed if financial performance is satisfactory, or else machines may be removed if profits drop below some benchmark. In the mid-1990s, gaming machine turnover grew more rapidly in hotels than in clubs, resulting in the installation of additional machines. The empirical results suggest that this effect may now have abated. The converse is true in clubs, where the feedback phenomenon appears to have gathered momentum only recently. This may reflect the removal of machines from smaller clubs which cannot satisfy minimum turnover or profits criteria set by gaming operators. It is also likely that clubs have become more mindful of performance standards and are now promoting EGM use more vigorously.

Gaming and tourism

Takings from tourist accommodation explain approximately 16.5 per cent of the variation in regional gaming spending over time. However, the spin-offs to gaming from tourist vacation nights are generally low. It is estimated that for each additional dollar spent on tourist accommodation in Victoria, a further 3 cents is bet on poker machines in the local region. Considering Victorian regions as a whole, gaming does not appear to be a major enticement for tourist visitation. This result might, however, have been different if we had restricted analysis to recognised tourist regions.

Gaming and time to game

Expenditure does not appear to be influenced by the number or proportion of non-working adults in each region. However, unemployment across local government areas has a negative and statistically significant impact on gaming expenditure, probably reflecting an income effect. The unemployment rate explains about 4.8 per cent of the regional variation in gaming expenditure. In a “typical” Victorian region, a 1 per cent rise in the unemployment rate reduces quarterly net gaming expenditure by an amount equivalent to \$1.23 per adult.

Gaming and socio economic status

Net gaming expenditure in each region is negatively affected by the number of recipients of labour market payments and family payments. The result for labour market payments is consistent with that for the unemployment rate. Two other social security variables, comprising claimant numbers for other social security payments and for pension payments, have a positive impact on gaming expenditure.

In a typical Victorian region, each additional claimant of Centrelink payments has the following effect on gaming expenditure over a three month period:

- pensioners: + \$0.07;
- unemployment benefit recipients: -\$0.10;
- family payment recipients: -\$0.22; and

- other social security payments: +\$0.34.

This means, for example, that total gaming expenditure per quarter in a local government region increases by \$0.07 for every additional pensioner in the region. This indicates that the more pensioners in a region, the greater the amount of gaming expenditure in that region. In contrast, our results indicate that the more unemployment benefit recipients in a region, the lower the amount of gaming expenditure in that region. Therefore, the effect of the number of welfare beneficiaries on regional gaming expenditure depends on the *type* of welfare payment received. If it is aged pensions, then gaming expenditure will be higher, whereas if it is unemployment, then gaming expenditure will be lower, all other things being equal.

The regression model does not stipulate that the increase or decrease in spending is the sole consequence of the recipient's activities. Rather, it simply finds a statistically significant relationship between regional gaming expenditure and the number of recipients of particular types of welfare, without specifying the reason for this relationship. Therefore it is possible, for instance, that when a claimant receives rent assistance (part of the "other" payments category), he or she may spend more of his own money but may also encourage other gamblers to bet more. In this way, the additional amount wagered may be more than the value of the benefit received. Tests for exogeneity of the social security variables showed that they were all independent of past and current levels of gaming expenditure in the regions.

Gaming and attitudes

Indicators of consumer sentiment were calculated for the six principal study regions using data from KPMG's household survey. The most general indicator (which measures people's perception about the performance of their regional economy) was found to explain roughly 7 per cent of the variation in gaming expenditure between the six regions.

There is little economic theory on the determinants and drivers of gaming expenditure, which makes it harder to model econometrically than other forms of consumption expenditure. Gaming has also been growing rapidly since EGMs were legalised in Victoria in 1992, with no downturn yet in sight. In future, when the industry has matured and cyclical spending patterns have become evident, more information will be available to explore these relationships.

In addition, it is difficult to measure many of the social and individual characteristics affecting gaming, such as differences in individual's entertainment tastes. If these factors drive gaming expenditure but are not included in econometric models, then the model's results will be misleading. For these reasons, our results should be considered as preliminary and treated with caution. Overall we think there is a strong case for further empirical work exploring the relationship between gaming supply and gaming expenditure.

The sections which follow set out:

- factors affecting regional gaming expenditure (Section 2);
- the approach and data issues (Section 3); and
- the results of the panel regressions which have been undertaken (Section 4).

This is followed by two appendices:

- list of key references (Appendix 1); and
- a survey of issues around gaming and venue operating hours (Appendix 2); and

2 Factors affecting regional gaming expenditure

Submissions to the Productivity Commission inquiry by local government (the City of Maribyrnong and the City of Greater Dandenong) have noted the large amounts of money being spent on gaming machines in certain municipalities. Losses to EGM gaming at venues within Maribyrnong⁴, for instance, have been estimated at \$44 million per annum (1996-97) or about \$45 per week per active gambler within the municipality (based on the presumption that about 40 per cent of the adult population uses EGMs at least annually). Other research⁵ by Victoria University of Technology has estimated that of the \$44m, approximately \$16m leaves the local community. Maribyrnong Council is concerned that its residents are contributing a substantial and disproportionately high level of gaming taxes and charges to the State government, the gaming machine operators and the Community Support Fund. The Productivity Commission *Draft Report* recognises that because higher taxes are levied on gaming than on most other goods and services, the “leakage” of funds resulting from expenditure on gaming will be commensurately greater than from spending on other goods (page 9.41). This is particularly so in Victoria, where arrangements for the provision of EGMs result in clubs and hotels retaining a lower proportion of revenues than in other States (notably New South Wales).

In this Supporting Paper, we report on some quantitative analysis which was performed to identify the factors affecting the level of gaming expenditure in a region. The research uses information collected during our study – quantitative data from official sources reported in the regional profiles, issues raised in consultations and desk research, and data collected through our household survey (reported in Supporting Paper No. 1). The research undertaken integrates the findings of the different phases of the Longitudinal Community Impact Study through an investigation of the determinants of EGM expenditure in the regions. Comprehensive econometric analysis was performed, but not economic modelling of the type which incorporates macro-economic variables.

We would expect that the determinants of gaming expenditure within a region would be divided into the following broad categories:

1. Size factors

- *population of the region.* Population size affects the number of potential gamblers and we would expect a positive relationship with regional gaming expenditure. We have incorporated this into our analysis by modelling gaming expenditure per adult.
- *number of tourists visiting the region,* particularly for holiday regions. Tourists add to the numbers of people in the region, plus we can postulate that they have a higher propensity to gamble. We have explored this issue by analysing the expenditure on tourist accommodation as a proxy for number of tourists.

⁴ *Submission 39*, City of Maribyrnong. Since this submission was lodged, the Government has released data showing that losses to EGM gaming at venues within Maribyrnong were \$53 million in 1998-99 equivalent to \$1,079 per adult.

⁵ James Doughney and Tony Kelleher, *The Impact of Poker Machine Gambling on Low-Income Municipalities. A Critical Survey of Key Issues.* Victoria University of Technology.

2. Venue supply factors

- *availability of gaming.* The number of EGMs and venues are postulated to positively affect the expenditure on gaming within a region. The relationship between the number of EGMs and venues and gaming expenditure was explored by the Productivity Commission in its *Draft Report*⁶, using Queensland data and we have undertaken similar analysis for Victorian data. We have not, however, had sufficient information to econometrically estimate the relationship between gaming expenditure and hours of operation. Appendix Two provides some information relating to the issues around operating hours.
- *access to gaming.* We can postulate that the closer people live and work to gaming venues, the higher will be their expenditure. This relationship will vary between regions; for instance, in metropolitan areas the number of people in walking distance of the venues, and in rural regions the number of people within a reasonable driving distance of the venues, may positively impact on gaming expenditure. If the accessibility to gaming venues improves, then this in effect implies a fall in the price of gaming. Unfortunately our data was insufficient to explore this relationship.

3. Individual demand factors

- *income levels.* There have been a number of concerns with the accuracy of most sources of self-reported gaming expenditure data with which one could examine the relationship between gaming and income levels. Previous gaming research based on the Australian Bureau of Statistics' household expenditure survey (HES) has found that EGMs are most popular with middle income earners. In contrast, Greater Dandenong and Maribyrnong Councils have drawn attention to the relationship between people's socio-economic status (which is largely determined by income levels) and access to, and expenditure on, gaming machines. A comparison of EGM densities with ABS socio-economic indices (SEIFA) for Victorian local government areas reveals a very strong, statistically significant correlation between the two datasets – that is, the more disadvantaged the municipality, the more likely it is to have a high density of EGMs. The Productivity Commission's *Draft Report* confirms this significant negative association. It would be interesting to investigate the causal links econometrically, but regional income and SEIFA data is only available at census points and not as a continuous time series so this was not possible.
- *opportunity or time to game.* Those who are not in the full-time labour force may have more time and therefore more opportunity to game. This includes retirees, unemployed and also incorporates the impact of the 'casualisation' of the workforce. Our analysis considered the relationship between gaming expenditure and both the proportion not in the labour force and the proportion unemployed in the region.
- conceivable that a number are social security recipients. Evidence from consultations, and the reports prepared by the Cities of Greater Dandenong and Maribyrnong, support this contention. Gaming machines are also popular with aged

⁶ Productivity Commission, Australia's Gambling Industries: *Draft Report* (1999)

- *socio-economic status.* Our research and consultations indicated concern regarding the placement of EGMs in low socio-economic areas. This alludes to the possibility that a high proportion of EGM gamblers are low-income earners, and it is
- pensioners, as evidenced by the increase in EGM numbers in Returned Service Leagues (RSL) Clubs to nearly 4,000 (out of a State total of 27,500 excluding the Casino). Participation in EGM gaming by aged pensioners and the unemployed is also relatively high, though not significantly higher than for the population as a whole. According to the Productivity Commission's *National Gambling Survey*, 44 per cent of pensioners had played poker machines over the previous 12 months, as had 37 per cent of the unemployed. The proportion for full-time workers was reported as 39 per cent (Table B.4 Appendix B of the *Draft Report*⁷). The VCGA's *Sixth Survey of Community Gambling Patterns* reports lower participation rates for the same occupational categories, but, interestingly, reveals that pensioners are amongst the groups spending the highest amount of time gaming per week. As a proxy for socio-economic status, we explored the relationship between gaming expenditure and the social security expenditure in the regions.
- *attitude to gaming.* High levels of consumer confidence and general optimism regarding the regional economic outlook may coincide with a higher propensity to game. As a proxy for the attitude to gaming, consumer sentiment was measured as a composite variable from the responses to a range of questions in KPMG's household survey conducted for this study.

There is little economic theory which formally considers gaming behaviour and spending levels. Expenditure on gaming has not been investigated rigorously in the same manner as, say, the consumption function. This meant that there was no *a priori* economic specification to be tested empirically. The regression functions utilised were therefore chosen heuristically, based on the application of econometric principles. Equation structures were revised in the light of regression results.

⁷ Ibid

3 The approach and data issues

3.1 Broad approach

We sought to examine the relationship between gaming expenditure and the characteristics of the regions, as set out in Section 2. Quarterly gaming expenditure data was provided by the VCGA and, where possible, equations were estimated for all Victorian regions, rather than just the six regions which are the principal focus of the study. The VCGA's "cash balance" data is based on daily records, compiled by an electronic monitoring system, of the amounts of money remaining in EGMs across the State at close of business. These figures are summed to give quarterly cash balance totals. The cash balances represent the net gaming expenditure or amount lost (or the amount wagered less the amount won) by people who game. Cash balances represent the gross profit due to the operators of EGMs and the venue proprietors.⁸

The dependent variable used was net gaming expenditure per adult, with estimates of regional population in Victorian LGAs derived from the Australian Bureau of Statistics and the Victorian Department of Infrastructure (DOI) data. The ABS data gives a breakdown of population in each LGA by age group on an annual basis to 1998. Estimates for 1999 were derived by using DOI population forecasts to make forward projections of ABS data.

We used panel data (data for all regions across several time periods) which has the following benefits:

- it enables the inclusion of seasonal and temporal factors, the effects of which are ignored if only cross-sectional data is examined;
- it provides larger samples with more degrees of freedom and more reliable estimates;
- it enables a distinction to be made between the impact of separate factors, such as scale economies and technological change, on the dependent variable;
- it helps us to deal with the problem of omitted variable bias. This usually arises when the dependent variable is strongly influenced by factors which may be difficult to measure or even identify. These factors affect the error term in such a way that it becomes related to the explanatory variables. In this situation, ordinary least squares (OLS) estimates are biased and inconsistent. This is important in the context of a study of the factors influencing gaming expenditure, because of the difficulty of measurement of many social and individual characteristics affecting gaming such as entertainment tastes. If these variables are inadvertently excluded from the regression, we may find that OLS estimates are biased and inconsistent; and

⁸ At the time this study was conducted, these data were confidential and not available to the public or able to be reported upon directly. This has only recently changed following a decision from the Minister for Gaming. The regional profiles in Supporting Papers 3-8 have been amended to reflect this change, but this paper has not.

- it allows various tests to be conducted:
 - are the coefficients of the explanatory variables consistent across regions with differences arising only in the value of the intercept term? If the intercept terms are significantly different from each other, then this implies that there is systematic variation between the regions of Victoria in the relationship between gaming expenditure and the prevalence of a given characteristic;
 - are the coefficients of the explanatory variables consistent across regions, while the intercept terms are derived from a common distribution? If true, this would imply a uniform structural relationship in each of the regions between the prevalence of a given characteristic and gaming receipts;
 - alternatively, there may be statistically significant differences between regions, in both the intercept terms and coefficients of the explanatory variables indicating significant regional differences;
 - elasticities and marginal costs can be calculated. For each Victorian region, it is possible to compute the rise (or fall) in net gaming expenditure resulting from an increase in the prevalence of given characteristics in the region; and
 - tests were able to be undertaken for exogeneity of the regression explanatory variables, to determine whether there is feedback from the dependent variable to the regressors. For example, is gaming expenditure in the regions having an effect on social security expenditure or is the direction of causality only one way? Likewise, is gaming expenditure having a (reverse) effect on numbers of tourists in the region?

The large sample derived from panel data ensured that there were adequate degrees of freedom for numerical analysis and hypothesis testing, and was necessary to obtain robust results which could be generalised for all parts of the State. These findings, described in Section 4, draw attention to the need for additional explanatory variables to account for the variation in spending between the regions. Structural characteristics of the regions underpin the demand for gaming as a leisure or recreational activity.

In the empirical analysis undertaken, panel regressions were run separately for the following groups of explanatory variables.

- venue supply factors, measured as numbers of EGMs, and hotels and clubs with EGMs (per thousand head of the resident adult population) – Section 4.1;
- individual demand factors, including:
 - the unemployment rate – Section 4.2.1;
 - number of social security recipients – 4.2.2;
 - consumer sentiment indicators for 6 Victorian regions derived from the KPMG household survey – Section 4.2.3; and

- size factors, in particular tourist accommodation revenues – Section 4.3.

These explanatory variables were derived from disparate sources and covered slightly different time periods, and in some instances, different subsets of the regions of Victoria. If all of the variables were used jointly in a regression, it would have been necessary to use the lowest common denominator of sample size. This would have been unsatisfactory, particularly because the consumer sentiment data was only available for six regions. Another potential problem with joint regressions is that some series may be collinear and so it is difficult to disentangle their separate influences. We would also be mixing supply and demand factors, thus violating any desired theoretical properties of the preferred equation specification. For these reasons we ran separate regressions for each of the above variables rather than incorporating them all in a single equation.

On the whole, the estimates of factors which affect gaming expenditure, derived in this analysis, were conservative. The magnitude of the impact of, say, social security and tourism variables, whether positive or negative, was, if anything, understated. This is because the estimated equations employed autoregressive error specifications which gave smaller parameter estimates for known explanatory variables (such as the number of pension recipients and the proceeds from tourist accommodation). The errors were modelled autoregressively because the disturbances from classical linear regressions were, in many instances, serially correlated. In effect, therefore, the use of autoregressive procedures “discounted” the importance of known causal factors, and gave prominence to the disturbances (the measures of our ignorance).

The Melbourne Casino was not included in this analysis and, if it were, the Casino would have to be treated separately because it operates on a larger scale than any other venue, and draws a high proportion of patrons from non-neighbouring regions. Given this, the Casino would therefore present as an “outlier” in any analysis undertaken.

Throughout this paper, comparisons are made between our findings and those in the Productivity Commission’s draft report. The Commission’s final report was published after we had completed our econometric analysis. In terms of comparing our work with the findings included in the Commission’s final report, a number of points should be made:

- In the final report, the Productivity Commission explored three relationships:
 - The link between the number of gaming machines per ten thousand adults in each region and the median weekly income per person in those regions;
 - the link between average annual expenditure on gaming machines per adult and the number of gaming machines per 10,000 adults in each region; and
 - the link between average annual expenditure on gaming machines per adult and median weekly income per person in each region.
- The second of these relationships is similar to the work conducted by KPMG.
 - However, KPMG also explored the link between gaming expenditure and number of gaming venues, as well as EGMs.

- The analysis in the Commission's final report covered the states of NSW, Queensland and SA for a single period.
 - The Commission did not calculate equations explaining variations in expenditure in Victoria.
- The Commission's final report did not explore the link between gaming expenditure and social security dependence, tourism or consumer sentiment.

In the remainder of this section we describe the data and estimation methods used to examine each explanatory variable, and in Section 4 we detail the results of the panel regressions. Much of this material is technical, as it relates to econometric estimation.

3.2 Venue supply factors

3.2.1 Data

The VCGA supplied quarterly data for EGMs and venues in 68 regions from September 1992 (the period in which EGMs were introduced to Victoria). Difficulties with the data included that there were a different number of time intervals for each of the regions, because EGMs were not taken up in all areas of the State simultaneously. In addition, there were many instances of a lag between the quarter in which EGMs were introduced and the quarter in which they came on line and started to generate revenue. We were, however, able to develop an appropriate data set for venue supply.

3.2.2 Estimation method

Using the data discussed in Section 3.1, our empirical investigations began with an examination of gaming expenditure per capita and the availability of gaming in the regions, measured as the number of clubs and hotels in each region, and the number of machines. This followed the Productivity Commission's draft report analysis of the effects of venue-supply factors on net gaming expenditure for 30 regions of Queensland. KPMG was able to replicate and extend the analysis for Victoria using data provided by the VCGA on the sums of money collected from EGMs in Victorian local government areas.

The basic regression model

We carried out a regression based on cross-sectional data, using net gaming expenditure as the dependent variable, and the number of EGMs and clubs and hotels with EGMs, as the three separate explanatory variables. The variables were expressed in per capita terms, based on the adult population, and were expressed in logarithms. This was similar to the Productivity Commission estimates and allowed comparison with the findings from that source. The sample size was 68, reflecting the number of local government areas in Victoria with gaming machines. The results are discussed in section 4.1.1. To extend the analysis, we then proceeded to estimate equations which utilised time series data for each of the 68 regions.

The basic framework for the analysis is a regression model of the form:

$$y_{it} = \alpha_{it} + \beta_{1it}x_{1it} + \beta_{2it}x_{2it} + \beta_{3it}x_{3it} + \varepsilon_{it} \quad (\text{Equation 3.1})$$

There are 3 regressors (variables), which are the number of EGMs, the number of clubs, and the number of hotels (all with gaming machines). The model has an intercept term, α_{it} , which is different in each region (i) and in each time period (t), because there are different unobserved factors in each region and each time period. Usually, we assume that the impact of these factors does not change over time. Then we have only a different term α_i , for each region, which is constant over time. This is a classical regression model, and, if we assume the α 's to be the same across regions, ordinary least squares (OLS) provides consistent and efficient estimates of α and β . However, if the α 's (unobserved factors) do vary between regions and over time, we can use two different approaches to estimate the relationship:

- the fixed effects model; and
- the random effects model.

The fixed effects model

The fixed effects model of estimating the relationship assumes that the unobserved factors (α 's) are related to the explanatory variables in the model. To obtain reliable OLS estimates, we need to eliminate these effects from the model. This can be done by using the first differences of the values of the variables, or, as we did, by using dummy variables to represent the unobserved factors (α 's). The resulting statistical model is:

$$y_{it} = \alpha_i + \beta_1x_{1it} + \beta_2x_{2it} + \beta_3x_{3it} + \varepsilon_{it} \quad (\text{Equation 3.2})$$

The model is more conventionally written if dummy variables are defined for each region. This implies that the region-specific effects are related to the explanatory variables in the model. Hence:

$$y_{it} = \sum_{j=1}^N \beta_{1j}D_{ji} + \sum_{k=2}^K \beta_k x_{kit} + \varepsilon_{it} \quad (\text{Equation 3.3})$$

where there are N regions (and therefore N dummy variables) and K-1 non-constant explanatory variables. This is referred to as the *least squares dummy variable* (LSDV) model. The estimated coefficients of the dummy variables are estimates of the region-specific effects, or α_i terms.

The random effects model

The random effects model assumes that the unobserved region-specific effects (α_i) are not related to all the explanatory variables in the model. Hence, we use a General Least Squares (GLS) technique⁹. OLS is inefficient, because it places too much weight on the variation between regions, attributing it all to changes in the explanatory variables.

⁹ See J. Woodridge, *Introductory Economics*, (1999), Chapter 14.2.

The GLS estimator apportions some of the variation between regions to random variation from one region to the next.

The model can be reformulated as:

$$y_{it} = \alpha_{1i} + \beta_1 x_{1it} + \beta_2 x_{2it} + \beta_3 x_{3it} + \varepsilon_{it} \quad (\text{Equation 3.4})$$

where $\alpha_i = \bar{\alpha} + \mu_i$ $i = 1, \dots, N$

The unobserved region-specific effects (α_i 's) are unrelated to the explanatory variables in the model. α_{1i} is therefore random and modelled as above. The component μ_i is the random disturbance characterising the i th observation and is constant through time. It can be viewed as the collection of factors, not in the regression equation, which are specific to that region. The remaining error term, ε_{it} , has a time-varying component, which causes persistent deviations of the dependent variable, $y_{i,t}$, from its predicted value based on the explanatory variables x_{it} . The deviations may be due to social and economic characteristics of a region which are not captured in the regression equation.

The fixed effects approach is costly in terms of degrees of freedom lost and, in a wide, longitudinal dataset, the random effects model (outlined above) has intuitive appeal. The disadvantage of the random effects specification is that it assumes that the region-specific effects are uncorrelated with the other regressors, and may therefore suffer from inconsistency due to omitted variables.

Estimation tests

A Hausman test can be used to test whether the region-specific effects (x_i 's) are in fact uncorrelated. The test is based on the idea that under the (null) hypothesis of no correlation, both OLS in the least squares dummy variable model (LSDV), and GLS are consistent, but OLS is inefficient while, under the alternative, OLS is consistent but GLS is not.

The test statistic has a chi-squared distribution and the Wald Statistic (W) can be used to test whether the intercept terms are greater than the critical value (8.09). If the test statistic (W) is greater than 8.09, we reject the hypothesis that the region specific intercept terms (α_i 's) for all regions are equal.

To examine multi-collinearity more formally, we used the method of Belsley¹⁰ et al. (1980), described by Greene¹¹. In this approach, Belsey et al. comment that the condition number of a matrix is the square root of the ratio of the largest to the smallest characteristic root (or eigenvalue). The higher the condition number, the greater the correlation among the variables. Usually, values of 20 or more indicate potential multicollinearity.

¹⁰ D. Belsley, E. Kuh and R. Welch. *Regression Diagnostics: Identifying Influential Data and Sources of Collinearity*, 1980, New York: Wiley.

¹¹ Greene, op cit, Chapter 9.2.

Further tests were also conducted on the equations estimated to determine whether the explanatory variables themselves (number of EGMs, etc) are affected by the dependent variable (regional gaming expenditure). This “exogeneity” or feedback can be tested for using the Generalised Method of Moments (GMM) estimator. The model comprises four simultaneous equations regressing gaming expenditure at different time periods on current and lagged values of the explanatory variable, or regressor, with all variables in logarithms.

The stages involved in GMM estimation can be summarised as follows:

- reduced form equations are used to generate predicted values for all current endogenous variables, as in the first stage of 2-stage least squares (2SLS);
- two-stage least squares is applied to each structural equation in turn, to obtain 2SLS residuals. These residuals are then used to estimate the elements of the contemporaneous covariance matrix Σ ;
- the GMM estimator is applied to the entire system, with current endogenous variable observations replaced by predicted values, and with elements of the unknown matrix Σ replaced by estimates obtained in stage (2).

The GMM estimation procedure is equivalent to 3-stage least squares if the errors are serially independent and the same variables are used for each equation.

Tests were used to ascertain whether the explanatory variables were fully or partially exogenous:

- the test for weak (partial) exogeneity relies on a comparison of results from the regression based on regressors lagged twice and the regression based on regressors lagged once. The test examines whether there is zero correlation between the first-differenced disturbances and values of the regressor lagged once;
- the other weak (partial) exogeneity test compares results from the regression with regressors lagged once and the regression using regressors up to the current period. The first-differenced disturbances are examined for correlation with current regressor values;
- the test for strong (partial) exogeneity makes comparisons between the regressions using, alternately, current period regressors and future values of the regressors. The test detects possible correlations between the first-differenced disturbances and future values of the regressor.

GMM exogeneity tests for the number of EGMs in hotels and clubs were carried out separately using quarterly data, and then, for comparison, annual data. The results for quarterly and annual data were comparable.

The use of logarithms

In undertaking the estimations, the logarithms of the values of the variables were used.

When the logarithms of the values of the variables are used in an equation, the coefficients, ie., the β 's, no longer show the impact of unit changes in the explanatory variables on the dependent variable. These coefficients now represent elasticities; ie., they show the percentage change in the dependent variable when an explanatory variable changes by one per cent. To find the size of the actual change in net gaming expenditure (y) when there is a one unit change in the explanatory variable, x , in this type of model, we would use the following formula:

$$\Delta y = \beta \times \frac{y}{x} \quad (\text{Equation 3.5})$$

If we establish that the error terms in the model are related to each other in a way that can be modelled with an autoregressive (AR(1)) process, then the elasticity is now a function of the coefficient of the explanatory variable (β) and the rho (ρ) coefficient of the error term. In this situation, the size of the actual change in net gaming expenditure (y) when there is a one unit change in the explanatory variable (x) is found using the following formula:

$$\Delta y = \frac{\partial \log(y)}{\partial \log(x)} \times \frac{y}{x} \quad (\text{Equation 3.6})$$

Equation 3.6 tells us that the incremental effect on net gaming expenditure of a unit increase in the explanatory variable is equal to the partial derivative of the expenditure function with respect to the explanatory variable (both expressed as logarithms), times average expenditure per region over the average number of the explanatory variable per region. The equation can be evaluated at the sample mean or at any other interval in the sample range. Fitted values were used for the dependent variable.

3.3 Size factors

3.3.1 Data

We incorporated the impact of size of the region by modelling gaming expenditure per person as the dependent variable. We also wished to investigate the additional effect of tourist visitation on gaming expenditure using time-series, regional data from the ABS quarterly survey of tourist accommodation. Our *a priori* view was that tourism has a significant impact on gaming expenditure in holiday regions, tourist resorts, and regions providing resting places adjacent to main roads.

Data from the ABS Survey of Tourist Accommodation was obtained for the period from September quarter 1995 to June quarter 1999. Earlier data is available but not on the basis of the new Victorian local government boundaries, established after 1994. The following series were considered: number of establishments; number of guest rooms; number of bed spaces; employment; room nights occupied; room occupancy rates; guest nights; bed occupancy

rates; arrivals; average length of stay; and takings from accommodation. The scope of the tourist accommodation survey changed from March 1998 so that:

- serviced apartments were recognised as a discrete accommodation category from the March quarter; and
- the threshold for inclusion in the survey of hotels, motels, serviced apartments and guest houses (with facilities) rose from 5 rooms or units to 15 rooms.

Under the scope used up to December 1997, data was provided for 65 Victorian LGAs (out of a total of 78), of which 58 were relevant for this study because they contain gaming venues. Under the new scope (from March 1998), data was supplied for 54 LGAs of which 51 contain gaming venues. There was, however, a paucity of data for most Victorian LGAs for the March and June quarters 1998 resulting from the transition to the new system. To facilitate inter-temporal comparisons, the ABS provided bridging tables based on a re-evaluation of old scope 1997 data utilising the new scope. The bridging tables were used to splice data from 1998 onwards so as to convert it to the old scope. It was deemed preferable to do this, rather than to switch the old data onto the new scope, because a longer timespan of data was available for earlier periods than for later periods. Missing observations for March and June 1998 were estimated by interpolation. A continuous time series of data was thus constructed for 52 LGAs and this was employed in estimation procedures.

The New South Wales local government area of Wentworth was included in the analysis because of its proximity to Mildura. Historically, patrons have moved between the two regions to play electronic gaming machines. Prior to 1992, the flows were from Mildura to Wentworth because gaming was legalised in NSW in 1956, decades before it was in Victoria.¹²

The NSW Department of Gaming and Racing supplied data on the number of gaming machines in Wentworth clubs and hotels on a quarterly basis from June 1996 and on an annual basis for earlier periods. Net gaming machine losses to players were estimated from the Department's quarterly publications¹³, which cover the period from June 1994. The quarterly analyses of hotel and club EGM performance give aggregate figures on turnover, profits and machine numbers for the Murray statistical division. Financial data is provided for venues by machine size range. The statistics were used to derive profit estimates for gaming machines in hotels and clubs in the smaller Wentworth area. Since venue gross profit is treated synonymously with net gaming expenditure by participants, the analysis then included Wentworth as an additional observation to be considered in conjunction with Victorian regions.

The tourist accommodation variables are taken to be a proxy for the level of tourist visitation to an area. An alternative data source might have been the annual survey of household visitation patterns conducted by the Bureau of Tourism Research. However, this survey gives inadequate data for some smaller tourism regions and is inconsistent from one year to

¹² Relevant publications include *New South Wales Gaming Analysis 1993-94 to 1997-98, Registered Clubs Quarterly Gaming Analysis*, and *Hotels Quarterly Gaming Analysis*

¹³ *Ibid*

the next, because of changes to the boundaries and definitions of tourism regions. Hence it is unsuited to time series analysis.

3.3.2 Estimation method

Equations were estimated using net gaming expenditure by region as the dependent variable and different combinations of tourism variables as the explanatory variables. All of the series were expressed as logarithms. The basic specifications used were random and fixed effects versions of panel data models as described in section 3.2. However, because of serial correlation, a number of regressions were also run to examine autoregressive processes. As a separate exercise, equations were constructed and estimated by the GMM technique, so as to test for exogeneity of the explanatory variables.

3.4 Individual demand factors

3.4.1 Approach

The issue to be addressed was whether a higher proportion of individuals with certain characteristics in a region would make a material contribution to gaming revenues in that region. The variables considered included unemployment rates, social security data, crime data and consumer sentiment indicators.

3.4.2 Unemployment data and estimation methods used

Data

Variables which proxied for availability of time to game were used in our analyses. One variable which we examined was the proportion of persons not in the labour force. The variable was derived for each of the 68 LGAs using estimated residential population figures and small area labour markets data. Data was obtained from the *Small Area Labour Markets* publication of the Department of Workplace Relations and Small Business (DEWRSB), which prepares quarterly estimates of participation and unemployment rates for Victorian statistical local areas, (SLAs), by applying a simulation methodology and using data from the ABS labour force survey. The publication gives details of the numbers of unemployed persons and the size of the labour force by SLA, and the figures were aggregated up to local government area (LGA) level. We used data from September quarter 1997 to June quarter 1999. Earlier series are available but are provided on the basis of pre-1994 LGA and SLA boundaries and hence are not directly comparable.

The number of non-working adults in each LGA was calculated by subtracting DEWRSB labour force estimates from ABS resident population estimates for persons in the 15 to 65 year old age group. Unfortunately, it was not possible to exclude 15 to 17 year olds from this variable, so they are included in our analyses. We sought to investigate the impact of this variable on regional gaming expenditure because of our presumption that non-working persons will have more opportunities to game. The hypothesis being tested was that expenditure on EGMs would be higher in areas with a high proportion of the population not in the labour force.

Estimation methods used

The effects of the unemployment rate in each area, and the number or proportion of non-working adults, were investigated using the panel data with fixed effects and random effects specifications. Since the disturbances were found to be serially correlated with the explanatory variables in the model, a fixed-effects equation was also estimated using an autoregressive AR(2) estimator. Elasticities were calculated using the parameters from the AR(2) equation. The elasticity of gaming expenditure with respect to the unemployment rate is a function of the unemployment coefficient estimate, and of the parameters, ϕ_1 (ϕ_1) and ϕ_2 (ϕ_2), on the first and second order autoregressive error terms. This is explained in greater detail in Section 4.

3.4.3 Social security data and estimation methods used*Data*

We investigated the hypothesis that spending on gaming is heavily concentrated among pensioners and unemployed persons. This was achieved by incorporating social security variables in different regressions. We sought data on social security payments by local government area from Centrelink, which administers Federal Government spending in this area. However, Centrelink was only able to provide postcode-level data on actual recipient numbers by LGA, classified according to payment types. Quarterly data was provided from June 1996 to June 1999 for Victorian postcodes and postcodes in Wentworth LGA. Nominal expenditure figures were unavailable.

The database consisted of around thirty types of social security benefit per quarter. The payments were aggregated into five broad categories: pension payments, labour market payments, family payments, parenting allowances and other payments. The “other” category includes child care payments and rent assistance.

A great deal of care was required in constructing a time series because there have been considerable changes in recent years in the nature and types of payments available. A few payments which commenced only recently were excluded from the analysis. Others were extrapolated backwards using splicing techniques. It was necessary to ensure that changes in the numbers of social security recipients in each category from one quarter to the next reflected economic and social factors, rather than variations in the nature, scope or definition of a particular payment.

The postcode data was then re-allocated to local government areas using tables derived from the ABS postcode to LGA concordance. The basis for the concordance is the estimated resident population by census collection district (CCD). A small proportion of the dataset supplied contained observations for non-existent postcodes and it was necessary to re-allocate these to the nearest sensible postcode.

Estimation methods

Regressions were run using numbers of social security recipients in each group as explanatory variables. Experiments were conducted using variants of the original series, and lagged independent variables in place of current observations. The series examined was

expressed in logarithms. Initial panel regressions favoured the fixed effects specification over random effects. However, the error terms were serially correlated and so we estimated an autoregressive model of order one (AR1). The equation conformed to the fixed effects specification by incorporating dummy variables for each of the regions. GMM estimation was used to test for the exogeneity of each of the five social security variables.

3.4.4 Consumer sentiment data and estimation method

Data

KPMG's survey of households in the six study regions covered both gamers and non-gamers and included series of questions geared to investigating aspects of consumer behaviour and attitudes. There were questions designed to elicit consumer sentiment in general terms, questions exploring a respondent's sense of well-being in more detail, and questions which sought views on local issues such as the regional economy.¹⁴

The five principal "consumer contentment" questions were based on similar questions posed in the Westpac-Melbourne Institute's monthly *Survey of Consumer Expectations*¹⁵. We asked respondents to comment in turn on their personal finances, their state of health, stress and happiness, and their perceptions of trends in the Australian economy. The questions were presented as statements (for instance, "The Australian economy is doing well") and interviewees were invited to nominate one of five responses graded on a scale from "strongly disagree" to "strongly agree". The answers to the questions were then sorted and grouped. An index was calculated based on half the neutral responses, and all of the responses in the "agree" and "strongly agree" categories, expressed as a percentage:

$$\text{Index for each question} = ((1/2 \times (\% \text{ of neutral responses}) + (\% \text{ of "agree" responses}) + (\% \text{ of "strongly agree" responses})) \times 10 \quad (\text{Equation 3.7})$$

The index for each question produced in this way varies in value between 0 and 1,000. An alternative method of computing the index (favoured by the Melbourne Institute but not used in this study) is to take the proportion of optimists minus the proportion of pessimists, plus one hundred. In order to obtain a longer time series of consumer sentiment data, consideration was given to the construction of a regional measure of consumer confidence, based on data from the Westpac-Melbourne Institute Survey. However, this data set lacks detail at a State and regional level because it is essentially a national survey. Composite figures for the regions derived from unit records would be expected to have high error variances and wide confidence intervals.

¹⁴ The questions designed to elicit consumer sentiment in general terms were questions 1 to 5 in Part B of KPMG's consumer survey. The questions exploring a respondent's sense of well being in more detail were questions 11 to 13 and 32 to 39 in Part B of the survey. The questions seeking views on local issues were questions 23 to 30 and 55 to 61 in Part B of the survey. The wording of all these questions is given in Appendix 3 of Supporting Paper No. 1

¹⁵ This survey, undertaken by the Melbourne Institute of Applied Economic and Social Research, seeks the views of 1,200 respondents stratified by State, and has been conducted monthly since 1986. Once a quarter, the sample size is increased to 1,410.

The method chosen by KPMG to calculate consumer sentiment indices highlights the contrasts between the regions. To illustrate this, Table 3.1 compares index values calculated by three different methods using the responses to question number 2 of KPMG's household survey.

Table 3.1: Calculating an index from survey responses – perceptions of the economy

Section B, Question 2	City of Greater Dandenong	City of Greater Geelong	City of Maribyrnong	Rural City of Mildura	City of Moreland	Shire of Wellington	Totals
	Number of responses by category						
Strongly disagree	7	6	13	12	5	12	55
Disagree	28	31	36	41	36	34	206
Neutral	59	61	47	64	54	63	348
Agree	63	62	59	44	63	47	338
Strongly Agree	10	7	12	6	8	10	53
Grand Total	167	167	167	167	166	166	1000
Calculate index - use % of goods less % of bads plus 100							
Use % (IAESR)	122.8	119.2	113.2	98.2	118.1	106.6	113.0
Use share	100.2	100.2	100.1	100.0	100.2	100.1	100.1
Calculate index - use % of goods less % of bads times 100							
Use %	2275.4	1916.2	1317.4	-179.6	1807.2	662.7	1300
Use share	22.8	19.2	13.2	-1.8	18.1	6.6	13.0
KPMG index - goods plus half the satisfactory, in % terms, times ten							
	613.8	595.8	565.9	491.0	590.4	533.1	565

We constructed a “Consumer Sentiment Indicator”, derived as the arithmetic average of five component indices calculated from the five principal questions regarding perceptions of the economy asked in KPMG’s household survey (reported in Supporting Paper No 1). A “Personal Well-Being Indicator” was derived from nine of the survey questions which sought opinions on a diverse range of issues such as family life, personal security, loneliness, social life, levels of individual activity, boredom, adequacy of income to meet daily needs, and people’s liking of luxuries. A “Local Economy Indicator” was based on questions which focused on regions and suburbs, covering issues such as local shopping, the regional economy, the sense of community, personal safety, crime, employment opportunities and sport. Finally, an “Overall Indicator” was calculated as the arithmetic mean of all twenty-two component indices.

The indicators were calculated for the current period, however respondents were also asked to consider an earlier timeframe, three years prior, and to give answers to a parallel set of questions. The phrasing of the questions was chosen carefully so that interviewees would understand that they were being asked about the same issues at some point in the past. Indicators were then computed for the earlier reference period, which was denoted 1995-96. These could then be compared with the 1998-99 indicators. Estimates of indicator values for 1996-97 and 1997-98 were derived by linear interpolation.

Table 3.2: Summary of results – indicator values from household survey

Indicator type	Year	Dandenong	Geelong	Maribyrnong	Mildura	Moreland	Wellington
Consumer Sentiment Indicator	1997-98	595.6	585.2	577.0	557.5	584.5	570.7
	1998-99	706.0	710.2	673.7	661.1	687.3	674.1
Personal Well-Being Indicator	1997-98	565.5	580.5	600.8	575.0	576.3	587.8
	1998-99	600.5	624.8	630.7	624.4	617.5	624.2
Local Economy Indicator	1997-98	526.2	591.1	545.7	622.4	583.3	606.6
	1998-99	527.3	648.6	541.9	710.3	623.5	604.7
Overall Indicator	1997-98	558.1	585.4	575.3	588.2	580.7	590.7
	1998-99	597.8	652.8	608.2	664.0	635.5	628.4

From our calculations, Greater Geelong had the highest Consumer Sentiment Indicator in 1998-99, while Greater Dandenong was highest in 1997-98. Both regions have above average levels of gaming expenditure per capita. However, the City of Maribyrnong, with even higher levels of gaming expenditure per adult, ranked fifth on the Consumer Sentiment Indicator in 1998-99 and fourth in 1997-98. For the Local Economy Indicator, the Rural City of Mildura registered the highest score in 1998-99 and also showed the most pronounced improvement from 1995-96.

In general terms, time-series regression of gaming expenditure on an index of consumer confidence is likely to produce uncertain results because gaming expenditure is a non-stationary series (that is, the expected value changes over time, and, in Victoria, has been trending upwards), while the consumer confidence index is stationary (its average value is expected to stay the same in the long term). However, in this exercise, the Consumer Sentiment Indicator showed a sharp increase across most regions from 1995-96 to 1998-99 so that there was little direct evidence of stationarity. The other Indicators exhibited similar patterns, with one or two exceptions. The general upward trend may be partly the result of cognitive bias, that is, respondents claiming that their lives were better now than three years ago but if asked the same question three years ago, a more sanguine outlook may have been found.

As a supplement to the use of consumer sentiment data, KPMG also constructed an index of gaming satisfaction based on responses to two questions about personal gaming experiences, and the attractions to, and motivations for, gaming. Although the responses to those questions, as coded in the surveys, do not measure consumer contentment very broadly, they nonetheless reflect lifestyle choices and attitudinal factors. The index of gaming satisfaction is then based on the proportion of positive responses less the proportion of negative responses. It is possible to gauge from the responses whether gamers are sanguine or pessimistic about their personal prospects. The responses are a proxy for “satisfaction with life”.

The gaming satisfaction questions were designed to mirror those asked in the VCGA’s fourth, fifth and sixth *Surveys of Community Gambling Patterns and Perceptions*. It had been planned to use the VCGA’s records to construct historical values of the gaming

satisfaction index for our six study areas. The purpose of the exercise was to enable inter-temporal comparisons of index values to be made. The index values for the six regions, both past and present, would then be inserted into regression equations. Unfortunately, this was not possible in the current study.

Estimation methods used

The indicator values for 1997-98 and 1998-99 were incorporated into simple panel regressions based on the six study regions only. Regional gaming expenditure, annualised for the last two fiscal years, was used as the dependent variable but, because of the small sample size, and therefore limited degrees of freedom, only one or two explanatory variables were used at a time. The consumer indicator variables were not employed simultaneously as regressors because of possible multicollinearity, hence each variable was used in conjunction with another regressor, such as, for instance, the number of hotels and clubs in a region or the number of gaming machines. Because of the limited number of observations (in both the cross-sectional and time series dimensions), the panel regressions were based on random effects specifications. The fixed effects specification was used in equations with only one other explanatory variable.

4 Results of panel regressions

4.1 Venue supply factors

4.1.1 Venue and EGM numbers

Our preliminary analysis investigated the impact that venue and EGM numbers have on gaming machine expenditure. A regression was performed using June 1998 data for 68 Victorian local government areas.

$$\log(\text{PLOSS}) = 0.21 + 1.47 \log(\text{PEGMs}) - 0.34 \log(\text{PCLUBS}) - 0.27 \log(\text{PHOTELS}) \quad (\text{Eqn 4.1})$$

(0.55) (15.3) (-6.2) (-3.6)

where the figures in parentheses are White's heteroscedasticity corrected t-statistics, $R^2 = 0.84$, $N=60$ ¹⁶, $SE = 0.21$, and PLOSS stands for player losses per adult in each area; PEGMs is the number of poker machines per 1,000 adults; PCLUBS is the number of club venues with poker machines per 1,000 adults; and PHOTELS is the number of hotels with poker machines per 1,000 adults.

The Productivity Commission estimated an identical equation using Queensland data for 1998. However, it obtained a better fit to the data ($R^2 = 0.94$), suggesting that, in Queensland, the "model" explains a higher proportion of the regional variation in losses per adult. Note that the negative coefficient on venue numbers is not the result of correlation between machine numbers and venues.

The effect on regional gaming expenditure of an increase in EGM numbers was evaluated using the estimated parameters and mean values of the explanatory variables (as described by Equation 3.6 in Section 3.2). The increase in players' net expenditure resulting from the installation of an additional gaming machine is as follows:

$$\text{change in net gaming spending} = 1.47 \times (111.7/8.00) = \$20.45 \text{ per EGM (Equation 4.2).}$$

However, a 10 per cent increase in EGMs/adult = 0.8, hence the marginal effect = \$16.45 or 14.65 per cent of mean regional EGM expenditure per adult per quarter.

The results suggest that holding the number of venues constant, an increase in the number of machines per thousand adults leads to a higher than proportionate increase in net expenditure per adult. A 10 per cent rise in EGM numbers results in a 14.7 per cent increase in player losses, virtually the same result as in Queensland. On the other hand, an increase in the number of venues for a fixed number of machines (i.e. a reduction in machine density per venue) decreases player losses per capita. For both Queensland and Victoria, the effect is more pronounced for clubs than for hotels.

¹⁶ N=60 and not 68 because for some rural regions there are either no clubs or no hotels. The logarithm of zero is undefined, so the equation cannot be estimated for those areas.

The equation suggests that an increase in venue numbers need not, by itself, raise player losses per adult in an area. The result is counter-intuitive. To check on its validity, we investigated whether there might be a high degree of multi-collinearity between any of the regressors.

4.1.2 Multi-collinearity

One of the fundamental assumptions of OLS estimation of equations is that the explanatory variables are all independent of each other. OLS is efficient only if this assumption is satisfied. The correlation coefficients for the three explanatory variables, the number of EGMs, the number of hotels and the number of clubs (all divided by a multiple of the resident population) are shown in Table 4.1.

Table 4.1: Correlation matrix for EGM, club and hotel numbers (per thousand adults)

	log(PEGMs)	log(PCLUBS)	log(PHOTELS)
log(PEGMs)	1.00		
log(PCLUBS)	0.61	1.00	
log(PHOTELS)	0.70	0.51	1.00

The sample correlations shown in the table are all greater than 0.5 which is sufficiently large to raise concerns about potential multi-collinearity between the three regressors. The correlation coefficient between EGM numbers and hotels is the highest among the three, at 0.7. To examine multi-collinearity more formally, eigenvalues of the moment matrix over a limited part of the sample range were examined. Only a limited part of the sample was considered because some of the 68 regions had missing observations or zero values of club and hotel numbers. (This test is described in Section 3.2.) The condition number of the matrix was 55.8, which is larger than the benchmark value of 20. This implies that multi-collinearity is present in our cross-sectional regression. The conclusion is that we cannot rely on the results of Equation 4.1, based on the Productivity Commission's draft report methodology, and need to undertake further analysis.

4.1.3 Extending the Productivity Commission study

The fixed effects model

$$\log(\text{PLOSS}) = \text{dummy} + 0.809 \log(\text{PEGMs}) + 0.486 \log(\text{PCLUBS}) + 0.444 \log(\text{PHOTELS}) \quad (\text{Eqn } 4.3)$$

(13.5) (12.7) (11.3)

where the figures in parentheses are t-ratios, Sample size (N)=60, No. of dummies = 60, Minimum time periods (TMIN)=10, Maximum time periods (TMAX) 28, Number of observations (NOBS)=1413, Goodnes-of-fit (R^2)=0.833, Standard Error (SE)=0.310).

An F-test was carried out to investigate whether the different regions should all have the same intercept term. The value of the test statistic, $u = 22.98$, is greater than the critical value 8.09, indicating that the intercept parameters for all regions are not equal.

In practical terms, this implies that the effect of machine numbers on the net expenditure by players differs from one region to another. The impact of the number of clubs and the number of hotels also exhibits variation across the State. Note that the equation estimated in the Productivity Commission *Draft Report* (and replicated in section 4.1.1 above using cross-sectional data) produces different results from the fixed effects model estimated using Victorian panel data. There are no longer negative parameter estimates for numbers of clubs and hotels with gaming machines. Since the panel data specification is more comprehensive, it follows that an increase in the number of gaming clubs or hotels results in an increase in player losses, as does the rise in the number of gaming machines.

The random effects model

$$\log(\text{PLOSS}) = 4.26 + 0.972 \log(\text{PEGMs}) + 0.318 \log(\text{PCLUBS}) + 0.356 \log(\text{PHOTELS}) \quad (\text{Eqn 4.4})$$

(17.9) (17.6) (9.23) (9.55)

where the figures in parentheses are t-ratios, $N=60$, $\text{Time (T)} \leq 28$, $\text{NOBS}=1413$, $R^2=0.547$, and $\text{SE}=0.594$.

As previously discussed, the disadvantage of the random effects specification is that it assumes that the (region-specific) effects are uncorrelated with the explanatory variables. A Hausman test was used to ascertain whether fixed or random effects is the preferred specification (as described in Section 3.2). The test statistic obtained, $W=178.2$, had a p-value of [0.000] which implies that the region specific effects are related to the regressors. There are structural differences between regions in the relationship between net gaming expenditure, machine numbers, and the number of clubs and hotels with EGMs. This makes it necessary to maintain intercept terms which vary from one area to the next, and therefore require the use of fixed effects estimation.

The parameter estimates

The estimated parameters in Equation 4.3 (fixed effects) were used to calculate the impact on per capital gaming expenditure of an increase in the number of machines per thousand adults. The result obtained suggests that a 10 per cent increase in EGM numbers contributes to an 8.09 per cent increase in net gaming expenditure per adult. This is a smaller proportionate effect than that obtained by us and the Productivity Commission using equations estimated from cross-sectional data only. According to statistical theory, the result shown here should be more robust given that it is based on time-series data.

The effect on net gaming expenditure in our study regions of the introduction of new gaming venues (clubs or hotels) is shown in Table 4.2. The estimates in the table were found to be significant at the 1 per cent level.

Table 4.2: Marginal effect on net gaming expenditure per adult, in selected regions, of the introduction of a new venue, holding total number of EGMs constant

	Resulting quarterly increase (+) or decrease (-) in net gaming expenditure per adult						
Venue type	City of Greater Dand'g	City of Greater Geelong	City of Maribyr'g	City of Moreland	Rural City of Mildura	Shire of Wellington	Average for 68 regions
Clubs	\$0.99	\$0.64	\$0.82	\$0.50	\$0.35	\$0.23	\$0.50
Hotels	\$1.36	\$0.77	\$0.86	\$0.53	\$0.43	\$0.83	\$0.56

Note that the figures relate to one quarter. The estimated regression parameters are used in conjunction with mean values of the explanatory variables (and fitted values of the dependent variable) over parts of the sample range appropriate to the chosen regions.

4.1.4 Preliminary conclusions

The analysis has been based on different types of regressions conducted at a regional level using net player losses per adult as the dependent variable, and the number of gaming machines, the number of clubs, and the number of hotels as the explanatory variables (regressors).

The results of estimations using cross-sectional data can only be used for comparative static purposes. The Productivity Commission's draft report results match those obtained initially by KPMG and imply that an increase in venue numbers for a fixed number of machines (i.e. a reduction in the average size of a venue) decreases net gaming expenditure. The effect is more pronounced for clubs than for hotels. However, the cross-sectional estimation is flawed because of significant multi-collinearity between the explanatory variables. Its ramifications are therefore misleading.

Multi-collinearity is overcome by incorporating time-series data for each of the 68 regions. This is preferable to using a single observation for each area. The fixed effects specification (based on time-series, cross-sectional data) shows that the precise relationship between gaming expenditure and gaming machines varies from one region to the next. However, in all Victorian regions, an increase in either venue or machine numbers leads to an increase in net gaming expenditure. A corollary of this is that the increase in regional gaming expenditure in recent years can be traced to the growth in the number of gaming hotels and clubs, and machines.

Upon further examination, it was found that the fixed effects model cannot be simplified to an aggregate model, in which the data for all the regions are pooled together, without considerable loss of explanatory power. The random effects model assumes that differences between regions can be captured by a random disturbance term which is constant over time. However, hypothesis tests reject the proposition that the disturbance is uncorrelated with the other regressors. This implies that the equation suffers some inconsistency due to omitted variables. This is consistent with our earlier view that there are a range of other factors which should be incorporated (such as individual demand factors and venue accessibility).

Variance components were also computed in the time dimension. In general, however, it was found that the regression equation was more profoundly affected by region-specific factors than by fluctuations over time. This implies that for any one region, there is a fairly systematic inter-temporal relationship between gaming expenditure and machine numbers. The relationship is expected to persist over time. This could be examined in future years when more data are available.

4.1.5 Tests for exogeneity

The regressions thus far have concentrated on the effect of venue and EGM numbers on gaming expenditure (and therefore venue profitability). The possibility that gaming expenditure in a region might itself have an impact on the number of EGMs installed must be considered. This is clearly important because there is a strong likelihood of interaction between the two variables over time. Certainly, at the level of the individual venue, the number of EGMs in commission will be influenced by the average turnover per machine in recent periods. In normal circumstances, the more profitable hotels and clubs will apply for additional machines, and may have them allocated, while lower turnover establishments may be required to give up machines. The process of feedback is, in all probability, more pronounced in Victoria than in NSW because the venues do not own the EGMs.

Estimations were conducted to investigate whether the number of EGMs in a region is exogenous to regional gaming expenditure or simply predetermined. We looked at hotels and clubs separately, but in terms of the number of venues in each LGA rather than at the level of the individual venue. The GMM estimator was applied, with hotel or club gaming expenditure as the dependent variable and the number of hotel or club EGMs in the region as the explanatory variable (as discussed in Section 3.2).

The parameter estimates for hotel and club EGMs computed under different scenarios in the GMM estimation are reported in Table 4.3.

Table 4.3: Parameter estimates for hotel and club EGMs under different scenarios

	Parameter estimates (t-ratios and p values in parentheses)	Weak exogeneity (variables exogenous up to one period behind current quarter)	Weak exogeneity (variables exogenous up to current period)	Strong exogeneity (all variables are exogenous)
Hotel EGMs (dependent variable, hotel EGM profits)	β_1	-0.180 (-0.214[0.830])	1.23 (3.83[0.000])	0.524 (25.5[0.000])
	β_2	1.22 (3.86[0.000])	0.122 (1.73[0.083])	0.245 (7.77[0.000])
Club EGMs (dependent variable, club EGM profits)	β_1	0.785 (3.79[0.000])	1.13 (8.56[0.000])	0.813 (15.4[0.000])
	β_2	0.364 (2.50[0.012])	0.0680 (1.51[0.130])	0.164 (3.74[0.000])

From Table 4.3, we observe that the parameter estimates change as the number of instruments that are assumed to be exogenous increases. The test statistics from strong and weak exogeneity tests based on the different explanatory variables are reported in Table 4.4.

Table 4.4: Chi-squared tests for exogeneity of EGM numbers

	Number of hotel EGMs	Number of club EGMs
Test for weak exogeneity ¹	$\chi^2(2)\sim 18.7$ [0.00009]	$\chi^2(2)\sim 2.83$ [0.24238]
Test for strong exogeneity ²	$\chi^2(3)\sim 5.87$ [0.11824]	$\chi^2(3)\sim 7.60$ [0.05508]

Chi-squared statistics are shown with p-values in parentheses

Note (1): This is a test for zero correlation between the first-differenced disturbances and current period values of the regressor.

Note (2): This is a test for zero correlation between the first-differenced disturbances and future regressor values.

In the case of hotel EGMs, the results imply that in each year to 1997, the number of EGMs in hotels was affected by gaming expenditure in the same year and in previous years, although this was not so in 1998. There is some contrast in the results for club EGMs, which suggest that, up until 1997, the number of EGMs in clubs did not respond to gaming expenditure in past or current periods, but in 1998 EGM numbers were influenced by spending on gaming in 1997 and 1998.

4.2 Individual demand factors

4.2.1 Results of the investigation of regional unemployment data

The results from the fixed effects specification, with regional dummy variables and estimated using OLS, are shown below:

$$\log(\text{LOSS}_{it}) = \text{regional dummies} - 0.206 \log(\text{UR}_{it}) + U_t \quad (\text{Equation 4.5})$$

[-6.62 (0.00)]

where

the figures in parentheses are White's heteroscedasticity corrected t-ratios with associated p-values, N=69, T=8, NOBS=552, R²=0.995061, SE=0.099572, Dummy weight (DW)=0.972.

LOSS = net gaming expenditure per LGA.

UR = unemployment rate for each LGA

The results from the random effects specification estimated using GLS are:

$$\log(\text{LOSS}_{it}) = 15.4 - 0.201 \log(\text{UR}_{it}) + U_t \quad (\text{Equation 4.6})$$

[92.0 (0.00)] [-6.52 (0.00)]

where the figures in parentheses are t-ratios with associated p-values, N=69, T=8, NOBS=552, R²=0.047692, SE=1.34318, DW=0.00467.

The Hausman test yielded a test statistic of $\chi^2(1) = 1.421$ with p-value [0.23], suggesting that the random effects specification is preferred to fixed effects. The unemployment rate therefore has a uniform effect on gaming expenditure across the regions. Equation 4.6 implies that the unemployment rate explains 4.8 per cent of Victoria's regional variation in gaming expenditure.

Both the fixed and random methods suffered serial correlation and so an autoregressive equation AR(2) was used, incorporating regional dummies and thus resembling a fixed effects equation. A non-linear least squares, maximum likelihood iterative technique was used to estimate the equation where:

$$\log(\text{LOSS}_{it}) = \text{regional dummies} - 0.198 \log(\text{UR}_{it}) + 0.415(\text{RESID}_{t-1}) \quad (\text{Equation 4.7})$$

$$\begin{array}{r} [-5.31 (0.00)] \quad [7.15 (0.00)] \\ - 0.116(\text{RESID}_{t-2}) \\ [-2.02 (0.04)] \end{array}$$

where

- RESID_{t-1} = regression residuals in time period (t – 1);
- RESID_{t-2} = regression residuals in time period (t – 2);
- the figures in parentheses are t-ratios with associated p-values, N=69, T=8, NOBS=552, $R^2=0.996180$, SE=0.090231, DW = 1.770 [0.000, 0.994].

Evidence from Equation 4.6 and Equation 4.7 suggests that an increase in regional unemployment has a negative and statistically significant impact on net gaming expenditure. The incremental effect on regional gaming spending of an increase in the unemployment rate was calculated using the equation parameters and mean values of the explanatory variables. These calculations suggest that in an “average” Victorian region, a 1 per cent rise in the unemployment rate reduces quarterly net gaming expenditure by \$61,946 (equivalent to \$1.23 per adult).

No statistically valid, deterministic relationship could be discerned between the proportion of non-working persons in an area (measured as the fraction of the population, aged between 15 and 65 years, not in the labour force) and regional gaming expenditure. Equation 4.8 below is based on actual numbers of non-working adults in the regions and is estimated using OLS. The low t-statistic is indicative of the statistical non-significance of this variable.

$$\log(\text{LOSS}_{it}) = \text{regional dummies} - 0.0219 \log(\text{NWA}_{it}) + U_t \quad (\text{Equation 4.8})$$

$$[-0.808 (0.420)]$$

where the figures in parentheses are White's heteroscedasticity corrected t-ratios with associated p-values, N=69, T=8, NOBS=552, $R^2=0.994613$, SE=0.103988, DW=0.889.

The equation is able to capture almost all of the variance (R^2), because of the use of a dummy variable for each region under the fixed effects specification. The random effects specification was rejected by the Hausman test.

We can postulate that the low degree of explanatory power of these explanatory variables relating to numbers not in the labour force may be because they are too broadly-based to capture socio-economic differences between the regions which might account for the wide variation in gaming expenditure. However, the rate of unemployment has a strong negative impact on regional gaming expenditure, probably reflecting an income effect.

4.2.2 Results of the investigation of social security data

The following results are based on the fixed effects specification set out in Equation 4.9 and estimated using OLS.

$$\begin{aligned} \log(\text{LOSS}_{it}) = & \text{regional dummies} + 0.530 \log(\text{PENS}_{it}) - 0.375 \log(\text{LMP}_{it}) & (\text{Equation 4.9}) \\ & [0.978 (0.329)] & [-3.00 (0.003)] \\ & - 2.98 \log(\text{FAM}_{it}) + 0.764 \log(\text{PAR}_{it}) \\ & [-7.32 (0.000)] & [1.94 (0.052)] \\ & + 1.23 \log(\text{OTH}_{it}) + \text{RESID}_t \\ & [6.08 (0.000)] \end{aligned}$$

PENS = Pension payments
LMP = Labour market payments
FAM = Family payments
PAR = Parenting payments
OTH = Other benefits

where the figures in parentheses are t-ratios with associated p-values, N=69, TMIN=9, TMAX=13, NOBS=893, R²=0.983193, DW=0.809, and SE=0.179157.

Table 4.5: Statistical significance of social security variables

Variable	Effect on net gaming expenditure	Significance at 5% level (two-tailed)	Significance at 1% level (two-tailed)
Pension payments	+	No	No
Labour market payments	-	Yes	Yes
Family payments	-	Yes	Yes
Parenting allowances	+	Marginal	No
Other payments	+	Yes	Yes

Equation 4.9 suggests that regional gaming expenditure is positively affected by the number of recipients of pension, parenting and other social security payments, although the degree of significance of parenting payments is marginal, while pension payments are not significant. Labour market payments and family payments have a negative impact on gaming outlays in the regions with both variables significant at the 0.01 level.

The use of variables lagged either one quarter or four quarters did not produce an improvement in the results. The implication, therefore, is that gaming expenditure in the regions responds to movements in the social security variables in the same quarter. In joint regressions using, as explanatory variables, the number of clubs and hotels with EGMs in addition to the social security series, recipient numbers in the other payments and family payments categories were found to be of greater significance in influencing regional gaming expenditure than the number of hotels and clubs with EGMs.

Tests on Equation 4.9 indicated serial correlation, so the equation specification was refined to correct for the disturbance problem. An autoregressive (AR(1)) model was estimated by the method of maximum likelihood iteration and it affirmed the importance and sign of three explanatory variables, labour market payments, family payments and other payments, with the latter being the most significant.

Equation 4.10:

$$\begin{aligned} \log(\text{LOSS}) = & \text{regional dummies} + 0.375 \log(\text{PENS}_t) - 0.249 \log(\text{LMP}_t) - 1.27 \log(\text{FAM}_t) \\ & [2.11 (0.035)] \quad [-2.78 (0.005)] \quad [-3.11 (0.002)] \\ & - 0.326 \log(\text{PAR}_t) + 1.13 \log(\text{OTH}_t) + 0.689 \log(\text{RESID}_{t-1}) \\ & [-0.805 (0.421)] \quad [8.22 (0.000)] \quad [24.8 (0.000)] \end{aligned}$$

where RESID_{t-1} is the autoregressive error term with autocorrelation coefficient rho (ρ).

and where the figures in parentheses are t-ratios with associated p-values, N=69, TMIN=9, TMAX=13, NOBS=893, $R^2=0.984525$, DW=1.91, and SE=0.172712.

Note that the parameters for the social security variables are smaller in Equation 4.10 than in Equation 4.9. This is because of the influence of an additional variable in the equation, namely the disturbance term, which is now being modelled systematically as a function of itself over time. The rationale for quantifying the error term more formally is to correctly measure the contribution being made by the principal explanatory variables.

The incremental effect on gaming expenditure of an increase in the number of social security recipients in each category was estimated as follows (the example is based on pensioner numbers but is the same for the other explanatory variables):

$$\Delta \text{LOSS} \approx \beta_i + (\rho - \beta_i) \times \text{LOSS} / \text{PENS} \quad (\text{Equation 4.11})$$

where β_i is the parameter estimate corresponding to pensioner numbers (or other social security variables), ρ is the serial correlation parameter, LOSS is based on regression fitted values and, as with PENS, is an average over a specified part of the sample range.

The results are tabulated below. The numbers shown represent the impact on gaming expenditure in an “average” Victorian region resulting from an increase, by one claimant, in the number of social security recipients in each category. Note that the figures relate to one quarter.

Table 4.6: Marginal effect on net gaming expenditure in a “typical” Victorian region of an additional person claiming social security

New social security recipient under each of the following categories	Resulting quarterly increase/decrease in gaming expenditure	Significance at 5% level	Significance at 1% level
Pension payments	\$0.07	Yes	Marginal
Labour market payments	-\$0.10	Yes	No
Family payments	-\$0.22	Yes	Yes
Parenting allowances	-\$0.16	No	No
Other payments ¹	\$0.34	Yes	Yes

1 Other payments include child care payments and rent assistance.

Source: Equation 4.10. Note that the figures relate to one quarter.

The estimated equation parameters and fitted values of the dependent variable were also used to calculate incremental effects in our chosen study regions. The marginal effect on gaming expenditure in, say, Maribyrnong, was computed by evaluating the regression function (or its derivatives) over the appropriate part of the sample range. The range deemed suitable for this exercise was the last four quarters of data for each region. This is because nominal gaming expenditure has been increasing rapidly over time, but the rate of growth diminished in the year to June 1999. Average expenditure over the period can be assumed to be reasonably representative of gaming activity at present. The four quarters from September 1998 would form a suitable point from which to derive short-term forecasts of gaming expenditure using the estimated equation.

The results of this regional analysis are shown in *Table 4.7*. The table shows the increase in quarterly net gaming expenditure in our six study regions of an additional claimant of pension, labour market, family, parenting and other payments. These results are directly analogous to those in *Table 4.6*, except that whereas *Table 4.6* reports results averaged across all Victorian local government regions, *Table 4.7* reports the results for each of our six study regions.

For example, *Table 4.7* shows that an additional claimant of pension payments in the City of Greater Dandenong leads to an increase in quarterly expenditure on gaming in Dandenong of \$0.12. This is above the State average of \$0.07 (see *Table 4.6*), but below the result for the City of Maribyrnong, where an additional person claiming the pension leads to a \$0.14 increase in quarterly regional gaming expenditure.

Overall, the results in *Table 4.7* are not surprising. We would expect that there would be differences between regions that could lead to some differences in results, but overall the direction of the effect (eg a positive or negative effect of beneficiaries of a certain type of payment on gaming expenditure) is consistent across regions.¹⁷

Table 4.7: Marginal effect on net gaming expenditure in selected regions of an additional person claiming social security

Payment category	Resulting quarterly increase (+) or decrease (-) in net gaming expenditure					
	City of Greater Dandenong	City of Greater Geelong	City of Maribyrnong	City of Moreland	Rural City of Mildura	Shire of Wellington
Pension payments	\$0.12	\$0.08	\$0.14	\$0.06	\$0.07	\$0.07
Labour market payments	-\$0.43	-\$0.11	-\$0.14	-\$0.09	-\$0.09	-\$0.11
Family payments	-\$0.37	-\$0.31	-\$0.56	-\$0.30	-\$0.20	\$0.22
Parenting allowances	-\$0.24	-\$0.19	-\$0.36	-\$0.20	-\$0.14	-\$0.15
Other payments	\$0.50	\$0.45	\$0.64	\$0.37	\$0.29	\$0.40

Source: Equation 4.10. Note that the figures relate to one quarter. The estimated regression parameters are used in conjunction with mean values of the explanatory variables (and fitted values of the dependent variable) over parts of the sample range appropriate to the chosen regions.

It should be noted that the regression from which the elasticities and marginal effects are calculated does not purport to represent a behavioural function; that is, it offers no explanation of the mechanism by which an increase in social security recipients might be translated into a rise in regional gaming outlays. For some of the regions, such as for instance, Maribyrnong, it is quite plausible that the incremental effect on gaming expenditure, be it positive or negative, is greater than the amount that the new recipient can hope to receive in benefits. There are a number of hypotheses for this:

- firstly, a person who has recently become eligible for “other” social security payments such as rent assistance may misjudge the amount of benefit he or she expects to receive and, therefore, may spend more than his or her entitlement on gaming machines; and
- secondly, there may be multiplier effects. The individual collecting rent assistance may take friends to the gaming venue who also bet money on EGMs. Alternatively, he or she may, by his actions, urge those around him to wager larger amounts than they would otherwise. This suggests that there are a number of ways in which the growth in recipient numbers might have an impact on net player losses by all gamblers.

¹⁷ The one exception is family payments in Wellington. Across the State and in our other five study regions, an additional claimant of family payments leads to a reduction in regional gaming expenditure. However, in Wellington, an additional claimant of family payments leads to an increase in regional gaming expenditure.

GMM estimation was used to test for exogeneity of the social security variables. The test statistics are reported in *Table 4.8*.

Table 4.8: Chi-squared tests for exogeneity of social security variables

	Pension payments	Labour market payments	Family payments	Parenting allowances	Other social security payments
Test for weak exogeneity ¹ (I)	$\chi^2(3)\sim 4.34$ [0.227]	$\chi^2(3)\sim 6.44$ [0.092]	$\chi^2(3)\sim 7.63$ [0.054]	$\chi^2(3)\sim 3.45$ [0.328]	$\chi^2(3)\sim 8.10$ [0.044]
Test for weak exogeneity ² (II)	$\chi^2(3)\sim 0.421$ [0.936]	$\chi^2(3)\sim 3.15$ [0.369]	$\chi^2(3)\sim 3.98$ [0.264]	$\chi^2(3)\sim 0.645$ [0.886]	$\chi^2(3)\sim 8.12$ [0.044]
Test for strong exogeneity ³	$\chi^2(6)\sim 7.95$ [0.242]	$\chi^2(6)\sim 3.90$ [0.691]	$\chi^2(6)\sim 8.64$ [0.195]	$\chi^2(6)\sim 2.84$ [0.829]	$\chi^2(6)\sim 3.60$ [0.730]

Chi-squared statistics are shown with p-values in parentheses

Note (1): This is a test for zero correlation between the first-differenced disturbances and values of the regressor lagged once.

Note (2): This is a test for zero correlation between the first-differenced disturbances and current period values of the regressor.

Note (3): This is a test for zero correlation between the first-differenced disturbances and future regressor values.

These statistics indicate that there is no feedback from gaming expenditure, either past or present, to current and future values of the explanatory variables. The independence of each of the explanatory variables is therefore affirmed. The rise in gaming expenditure in recent years has had no discernible impact on the numbers of persons claiming social security. Likewise, expenditure on gaming today does not foreshadow a change in the number of social security claimants in future.

4.2.3 Results of the incorporation of consumer sentiment data

The consumer sentiment variables were discussed in Section 3.4.5. These variables made a small contribution to our understanding of gaming machine expenditure in the regions. The Consumer Sentiment and Local Economy Indicators were marginally significant, but the Well-Being and Overall Indicators were insignificant. Equation 4.12 below is based on the random effects specification, using GLS estimation.

$$\log(\text{LOSS}) = 13.5 + 0.623 \log(\text{CONSENT}_{it}) + U_t \quad \text{Equation 4.12}$$

[36.2 (0.000)] [16.7 (0.000)]

where CONSENT = the Consumer Sentiment Indicator calculated as a weighted average of the responses to five questions in KPMG's Household Survey;

and the figures in parentheses are t-ratios with associated p-values, N=6, T=2, NOBS=12, R²=0.071142, SE=0.716505, DW=0.00330

The Consumer Sentiment Indicator explains roughly 7 per cent of the variation in gaming expenditure between the six study regions. Note that these results are not directly comparable with those obtained using data from all regions - in general, larger samples produce results which are more robust and asymptotically valid. Equation 4.12 also suffers an acute serial correlation problem.

It is conceivable that the other indicators (and particularly the Well-Being Indicator) might have yielded superior results if the dataset was broader (covering a larger number of regions) and deeper (spreading over several time periods). However, this would have entailed conducting a longitudinal, household survey over a wider spread of Victorian regions.

Since the Consumer Indicators increased over time alongside gaming expenditure, this may have boosted the equation goodness-of-fit measures. However, regression diagnostics pointed to large variance components in the regional dimension, suggesting that the level of gaming expenditure in each LGA did not bear a strong relationship to consumer confidence.

4.3 **Size factors - tourism**

As expected, a number of the tourism series were highly collinear and moved in tandem with one another. For some regions, there were also strong seasonal patterns evident in the data, and so seasonal adjustment of the dependent and explanatory variables was undertaken using the ratio of moving averages method. The variables which were significant included hotel industry employment, bed spaces, bed occupancy rates, room occupancy rates, guest arrivals, and the takings from accommodation, with the latter being most important. Note that takings from accommodation are recorded during the month in which they are actually received and may thus include advance payments. To eliminate multi-collinearity, the final equation specification made use only of takings from accommodation and was based on the random effects specification using GLS estimation.

$$\log(\text{LOSS}) = 10.4 + 0.320 \log(\text{TAKE}_{it}) + U_t \quad (\text{Equation 4.13})$$

[20.2 (0.00)] [9.07 (0.00)]

where TAKE = revenues (\$) received from the provision of accommodation, excluding meals, for all qualifying establishments in the region, and where the figures in parentheses are t-ratios with associated p-values, N=53, TMIN=1, TMAX=16, NOBS=826, R²=0.165341, SE=1.26345, DW=0.0168. The Hausman test yielded a test statistic of $\chi^2(1) = 0.284$ with p-value [0.5942], suggesting that the random effects specification is more appropriate than fixed effects.

It is clear that short-term stays contribute to an understanding of the level of gaming activity in a region. Takings from tourist accommodation explain about 16.5 per cent of the variation in regional gaming expenditure over time.

A first-order autoregressive (AR1) model of gaming expenditure on accommodation receipts was estimated using a non-linear least squares, maximum likelihood iterative technique so as to control for the serially correlated disturbances in Equation 4.13.

$$\log(\text{LOSS}) = \text{regional dummies} + 0.0769 \log(\text{TAKE}_{it}) + 0.867 (\text{RESID}_{t-1}) \quad (\text{Equation 4.14})$$

[4.89 (0.00)] [41.6 (0.00)]

where RESID_{t-1} = regression residuals in time period $(t - 1)$.

and where the figures in parentheses are t-ratios with associated p-values, $N=51$, $T=16$, $\text{NOBS}=816$, $R^2=0.990783$, $\text{SE}=0.132519$, $\text{DW} = 1.79$.

The high t-ratio for accommodation revenues confirms the role of this variable in explaining the amount of gaming activity that is undertaken from one region to the next. Note, however, that the parameter estimate of 0.0769 is low, suggesting that the magnitude of the impact will be small. In other words, although the money spent in a region on hotel accommodation is a significant determinant econometrically of gaming expenditure, the actual flow-on effect is marginal. This may be because persons staying in hotels spend larger sums of money on accommodation, food and beverages than they do on poker machines, either in the same establishment or at another venue in the area.

The incremental effect on gaming expenditure of a one-dollar increase in the amount spent on accommodation in a region was estimated to be 3 cents on average for all regions. This is the increase in net gaming spending resulting from a \$1 boost to hotel accommodation spending in a “typical” Victorian region. All of the estimates were significant at the 5 per cent level.

Table 4.9: The increase in net gaming expenditure in selected regions of an additional dollar spent on accommodation

	Resulting number of cents spent on gaming (EGMs)						
	City of Greater Dandenong	City of Greater Geelong	City of Maribyrnong	City of Moreland	Rural City of Mildura	Shire of Wellington	Wentworth local government area
cents	24.5	8.3	30.7	13.2	16.0	2.86	2.98

Source: Equation 4.14. Note that the figures relate to one quarter. The estimated regression parameters are used in conjunction with mean values of the explanatory variables (and fitted values of the dependent variable) over parts of the sample range appropriate to the chosen regions.

The low result for Wentworth (NSW) reflects low spending on EGMs in that region by comparison with Mildura and with Victorian regions in general. Expenditure on EGMs in Wentworth clubs and hotels has remained flat since the mid-1990s¹⁸.

GMM estimation was used to test for exogeneity of the principal tourism variables, namely takings from accommodation, the bed occupancy rate, and employment in hotels and motels. The parameter estimates derived under different scenarios using takings from tourist accommodation are reported in Table 4.10.

Table 4.10: Parameter estimates for tourist accommodation receipts under different scenarios

Parameter estimates (t-ratios and p values in parentheses)	Weak exogeneity (instruments exogenous up to two periods behind current quarter)	Weak exogeneity (instruments exogenous up to one period behind current quarter)	Weak exogeneity (instruments exogenous up to current period)	Strong exogeneity (all instruments are exogenous)
β_1	0.0836 (7.83[0.000])	0.0828 (12.8[0.000])	0.0814 (14.3[0.000])	0.0761 (16.7[0.000])
β_2	0.0380 (3.11[0.002])	0.0351 (5.23[0.000])	0.0380 (6.70[0.000])	0.0304 (7.25[0.000])
β_3	-0.0592 (-3.40[0.001])	-0.0665 (-7.19[0.000])	-0.0611 (-8.15[0.000])	-0.0700 (-11.1[0.000])
β_4	0.0979 (5.42[0.000])	0.0998 (7.92[0.000])	0.103 (9.42[0.000])	0.0985 (14.0[0.000])

The test statistics from strong and weak exogeneity tests based on the different explanatory variables are reported in Table 4.11.

¹⁸ Relevant publications include *New South Wales Gaming Analysis 1993-94 to 1997-98, Registered Clubs Quarterly Gaming Analysis*, and *Hotels Quarterly Gaming Analysis*

Table 4.11: Chi-squared tests for exogeneity of tourist accommodation variables

	Takings from accommodation (\$)	Bed occupancy rate	Hotel/motel employment
Test for weak exogeneity ¹ (I)	$\chi^2(3)\sim 0.468$ [0.92591]	$\chi^2(3)\sim 1.89$ [0.59644]	$\chi^2(3)\sim 0.322$ [0.95587]
Test for weak exogeneity ² (II)	$\chi^2(3)\sim 0.414$ [0.93743]	$\chi^2(3)\sim 0.359$ [0.94860]	$\chi^2(3)\sim 2.56$ [0.46426]
Test for strong exogeneity ³	$\chi^2(6)\sim 1.34$ [0.96944]	$\chi^2(6)\sim 1.77$ [0.93959]	$\chi^2(6)\sim 0.971$ [0.98668]

Chi-squared statistics are shown with p-values in parentheses

Note (1): This is a test for zero correlation between the first-differenced disturbances and values of the regressor lagged once.

Note (2): This is a test for zero correlation between the first-differenced disturbances and current period values of the regressor.

Note (3): This is a test for zero correlation between the first-differenced disturbances and future regressor values.

The results from this GMM estimation indicate that the amount gambled in a region does not affect the overall bed occupancy rate, the level of employment in hotels and motels, or the amount spent on accommodation, either in the same time period or in subsequent periods. A corollary of this is that, considering Victorian regions as a whole, gaming does not appear to be a major enticement for tourist visitation. The result could conceivably differ, however, if we were to restrict the sample to recognised tourist regions, perhaps both in New South Wales and Victoria.

Appendix 1: References

S.C Ahn and P. Schmidt, “Efficient Estimation of Panel Data Models with Exogenous and Lagged Dependent Regressors”, *Journal of Econometrics*, 68, (1995), 5-27.

Manuel Arellano and Stephen R. Bond, “Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations”, *Review of Economic Studies*, 58, (1991), 277-297.

City of Maribyrnong, “Submission to the Productivity Commission’s reference on Australia’s Gambling Industries”, No 39, (1999).

James Doughney and Tony Kelleher, *The Impact of Poker Machine Gambling on Low Income Municipalities. A Critical Survey of Key Issues*, Victoria University of Technology (1999)

W.H. Greene, *Econometric Analysis*

J. Johnston & J. DiNardo, *Econometric Methods*

Michael P. Keene and David E. Runkle, “On the Estimation of Panel-Data Models with Serial Correlation when Instruments are not strictly Exogenous”, *Journal of Business and Economic Statistics*, 10, (1992), 1-29.

R.S. Pindyck & D.L. Rubinfeld, *Econometric Models and Economic Forecasts*

Productivity Commission, “Australia’s Gambling Industries”, *Draft and Final Reports* (1999), Productivity Commission

J. Wooldrige, *Introductory Econometrics* (1999)

Appendix 2: Gaming and venue operating hours

There has been considerable debate at local level regarding the extension of venue operating hours. Whilst we have been unable to explore this issue in detail in this project, we present below some case studies which give an indication of the issues which have been raised in the debate.

Case studies: Gaming legislation and the issue of opening hours

Since the 1994 publication of the Schilling report into the *Review of Electronic Gaming Machines in Victoria*, the State's casino and gaming regulators have expended considerable effort in detailing the social and economic impacts of gambling. The research to-date has quantified the significant social and economic effects of gaming (both beneficial and adverse) which provide justification for the regulation of gaming venues. A recurrent question which arises from the research, however, is where responsibility for the provision of adequate control over the location of gaming venues lies, and how this should facilitate the implementation of harm minimisation measures.

There are three pieces of legislation governing the operation of gaming venues, namely:

- the *Gaming Machine Control Act 1991*. This establishes a system for the licensing, regulation, supervision and control of gaming venues;
- the *Liquor Control Reform Act 1998*. This describes the duties and responsibilities of the Director of Liquor Licensing; and
- the *Planning and Environment Act 1987*. The State government is responsible for implementing most of the provisions set out in the statute, however local government also has a primary role, while the Victorian Civil and Administrative Tribunal makes rulings on interpretation of the Act.

In March 2000, the Victorian Government announced that it would be introducing new legislation to promote responsible gambling. The Government intends that the *Gambling Legislation (Responsible Gambling) Bill* will go before the Autumn sitting of Parliament this year. The Bill's provisions are described in the main report of this study.

The Gaming Machine Control Act

The objectives of the *Gaming Machine Control Act 1991* are identical to those of the *Casino Control Act 1991* and are directed at ensuring that:

- the management of gaming machines (and casinos) remains free of criminal influence and exploitation;
- gaming in casinos or on gaming machines is conducted honestly; and
- tourism, employment and economic development in the State are promoted.

The *Gaming Machine Control Act* deals with the approval of premises and individuals involved in their management. As described in section 12(c), the responsible authority (local government) may submit a report in relation to particular premises, in response to which the

Gaming Authority must consider whether the premises are or will be suitable for the management and operation of gaming machines. The Gaming Authority must also have regard to the size and layout of the gaming establishment. The Act covers some aspects of regulation, such as proscriptions on credit and restrictions on minors, which may to some extent impact on the social and economic impacts of gaming.

The Liquor Control Reform Act

The *Liquor Control Reform Act* is primarily concerned with the regulation of licensed premises selling liquor. It therefore resembles the Gaming Act and deals with the approbation of persons involved in the management of premises and, to a lesser extent, the premises themselves. The now repealed *Liquor Control Act 1987* had an explicit provision for community benefits. The objective of the Act was:

To respond to community interest by, *inter alia*, promoting economic and social growth in Victoria and encouraging the proper development of the liquor, hospitality and related industries.

The test for “community interest” arose in a number of cases heard before the Liquor Licensing Commission. In most instances, the issues revolved around the extension of opening hours in the licensed parts of premises. Some of these cases are discussed below.

The **Golf View Hotel** in North Geelong applied in late 1997 for a lengthening of its trading hours permit from 20 hours to 24 hours. This would have entailed a move from closure at 3 am to 24 hour operation. The City of Greater Geelong objected to the grant of the application on the grounds that it would be contrary to the community interest. As part of its evidence, the Council tendered two Victorian Casino and Gaming Authority reports, the “Social and Economic Effects of Electronic Gaming Machines on Non-Metropolitan Communities” and the “Summary of Findings, 1996-97 Research Program”. Attention was drawn to the negative impact of gaming machines in Geelong, as described in one section of the first report.

A counsellor from the Financial Counselling and Consumer Information Service testified that the nature of gambling by problem gamblers presenting to the agency was nearly always EGM related. She mentioned that the agency’s statistics demonstrated a 300 per cent increase over 12 months in the number of persons identifying gambling as a primary cause of financial difficulty, and that comparative figures for Geelong were double the State average. It was noted during the application that the information presented largely derived from anecdotes, and informal discussions with other counsellors. The proprietor of the hotel presented five demand witnesses (mostly shift workers) who attested to their usage of the public bar facilities in the early hours of the morning. No evidence was presented before the Commission that the amenity of the area might be an issue, because the hotel had adequate parking and appropriate security arrangements.

The Commissioner ruled on the basis of his decision in *Carlton Cricket and Football Social Club*, Glenroy, decision number 566R, where it was decided that the Commission had no jurisdiction to consider the social and economic impact of gaming in the context of a liquor licence application. The application for variation of the licence to cover extended hours was accepted.

The **Gateway Hotel**, also in Geelong, is an interesting case because it demonstrates an evolution in the Commission's thinking on social and economic issues, resulting in an apparent broadening of the parameters of the community interest test. The hearings were held in February and March 1998. The ALH Group (the Applicant) sought to increase the trading period allowed by its General Class 1 licence. As with the Golf View, the Gateway applied for 24 hour on-premises consumption in its gaming room, 365 days a year. No (local government) planning permit was required for the proposed change because the premises enjoyed "existing use" rights due to it being a hotel before planning restrictions were imposed.

The Objector, the City of Greater Geelong, submitted that the application ought to be refused on the basis that the extension of gaming would have a detrimental effect on the amenity of the area. The City Council's evidence was interpreted as suggesting that gaming for an extra 31 hours per week would necessarily be worse than gaming for the 137 hours already permitted. The Objector again presented evidence from the VCGA's 1996-97 research programme.

The Applicant claimed that evidence adduced by the Objector about the adverse effects of gaming was irrelevant because none of it pertained to the Gateway and its immediate environs. The Applicant relied on the *Melbourne Football Club* case, decision number 556 of the Commission, which held that evidence as to the deleterious effects of gaming was not something that the Commission could take into account in deciding any application under the Act. The Applicant also produced a "statement of need" which pointed to its inability to compete on an equal footing with other gaming facilities which operated 24 hours a day. When it was forced to close at 3 a.m., patrons could simply travel up the highway to the Crown Casino which had no limit on its opening hours.

In reaching a conclusion, the Commissioner turned to the full-bench decision of the *Carlton Cricket and Football Social Club*, decision number 566A. The relevant test was now construed as being whether the presence of gaming machines at the premises and an extension of the hours in which they were operating could have an adverse impact on the neighbouring community. The Commissioner ruled that material submitted by the Objectors did not adequately address this issue. It discussed the effects of gaming on Victorian society in general which was a broad issue beyond his bailiwick. He noted that, as with the effects of alcohol abuse, gaming's social impacts should be left to the State government. The Commissioner also expressed satisfaction that the amenity of the area would not be unduly affected by the extension of hours in the gaming room. He therefore granted the extended hours trading permit (decision number 636).

Following the Gateway and Golf View Hotel decisions, the City of Greater Geelong appealed both rulings, and the Golf View Hotel's 24 hour permit was withdrawn pending a full review later in 1998. At a directions hearing, the City was given leave to introduce fresh evidence intended to relate to its case concerning the effects of gaming. The City and the Golf View agreed to a compromise closing time of 5 am as opposed to 3 am or 7 am. The Gateway Hotel, however, maintained 24 hour trading in the interim period. The only other hotel in Geelong with extended hours was the Lord of the Isles Tavern which traded until 5 am.

The case of the **Norlane Hotel** was heard in April 1998 and the verdict reached appeared to be closer to that in the Golf View Hotel hearing than in the Gateway Hotel case. The Norlane applied for 24 hour trading, and the City of Greater Geelong submitted that this would have an adverse impact on individuals, families and businesses. The Administrative Appeals Tribunal examined the evidence presented in the form of the two VCGA reports, but noted that significant parts of the works commented on positive aspects of gaming, such as, for instance, increased employment opportunities and increased government revenue to be devoted to public services. The Tribunal also stated that a large part of the Deakin University report was based on community reaction (rather than, say, empirical findings), and that much of the material was placed before it by way of assertion. No expert witnesses had been called to respond to, adopt, adapt or comment upon the material contained within the study. The Tribunal maintained that it was simply invited to form the conclusion that a four-hour extension in the middle of the night would be harmful, and it declined to do so.

The Tribunal drew attention to the decision of *Ashley Hotel Pty Ltd vs. Banyule City Council & Langdon and Others* (1997/33518) in which it determined that:

Finally, we would also say that we are concerned about the development of an undesirable paternalism in town planning decisions. If gaming were to be prohibited in this location in the interests of avoiding further socio-economic problems in the “disadvantaged” West Heidelberg community, such an approach could set all manner of undesirable precedents for the definition of communities requiring “protection” from various developments – “environmental paternalism”.

The Tribunal also affirmed its role as an administrator rather than author of planning legislation. It said that it was precluded from considering social and economic effects, and that if there were social problems arising from gaming, they were of a macro-economic nature across the State, and couldn't be resolved by attempting to apply micro-economic solutions in selected areas.

“We believe that if we used as a basis for the determination of this application any conclusions about the negative socio-economic effects of gaming upon the community at large, this would be to question the availability of discretion under the Planning Scheme, that is it would be to review the legislation rather than to administer it. Despite the changes to the Planning Scheme since the hearing of this appeal, the Government has indicated its intention that gaming should continue as a lawful activity in the State: that decision is one within the politicians' purview.”

The Tribunal concluded that to adopt a piecemeal approach to micro-economic problems would simply result in shifting them from one geographic area to another. The material advanced by the City of Greater Geelong was too general to support a finding of the type it sought. The Norlane Hotel was permitted to operate a 24-hour gaming room.

The full bench of the Liquor Licensing Commission adopted a different perspective at the appeal hearing of the Golf View Hotel in September 1999. At the outset of the case, questions were raised about the Commission's jurisdiction to consider social and economic effects of gaming generally, or in relation to a particular premises or neighbourhood, and the parties requested a preliminary ruling to be delivered with reasons. The respondent's view that such evidence should be disallowed was rejected. The City of Geelong proposed to demonstrate that the additional social harm resulting from the availability of gaming from 3 am to 7 am was likely to exceed the benefits from the provision of additional drinking

opportunities to actual or potential customers. The Commission agreed to accept such evidence. In doing so, it acknowledged its responsibility:

“To place conditions on [licences] which may give appropriate weight to the expression “community interest”, even if that expression had not been used in the Act, with its usual, though not invariable, association with an “area” or neighbourhood.”

The Commission justified its decision to give consideration to all aspects of gaming by referring to provisions of the Liquor Control Act. The objects of that Act, as stated under section 5, are as follows:

- promoting economic and social growth in Victoria by encouraging the proper development of the liquor, hospitality and related industries; and
- facilitating the development of a diversity of licensed facilities reflecting consumer demand;
- providing adequate controls over the sale, disposal, and consumption of liquor; and
- contributing to the effective co-ordination of the efforts of government and non-government agencies in the prevention and control of alcohol abuse and misuse.

Gaming was construed as falling within the scope of “related industries”, the development of which the 1987 legislature sought to oversee. The Commission held that:

“[It] was not excluded from considering the consequences of gaming made possible by its decision to grant licences given that the heart of the Act is the “community interest” and problems associated with liquor (of which excessive gambling is clearly one possible one even if there were no necessary connection made by legislation between gaming and liquor), and given that the Parliament has made the Commission the gatekeeper responsible for several steps and criteria prerequisite to the obtaining of a gaming venue operator’s licence by specifically requiring the applicant to hold a liquor licence as mentioned above.

Nor is there any preferred statutory method of providing some control over what is universally acknowledged to be a socially significant activity with great capacity for harm if totally unregulated. That is not to say that the legislative scheme or schemes pertaining to either liquor or gaming can give one any confidence that one knows the plain intention and desires of legislators.”

The Commission thus took into account arguments put forward by the City of Greater Geelong on such matters as sexually explicit entertainment, broader amenity issues, and the overlap of responsibilities between the Commission and the VCGA. On sexually explicit entertainment, Counsel for the respondent, Mr Stuart Morris, mentioned that there were strict conditions for the licensing of adult-only parlours and outlets, and this demonstrated the Commission’s willingness to engage in “paternalistic social engineering”. On amenity, Mr Morris proposed that the term be extended to cover the social consequences of gaming. However, the Commission responded that this would add nothing to its general consideration of community interest. On the matter of competing jurisdictions, it was put to the Commission that the VCGA could deliver what the City of Greater Geelong sought simply by imposing the restrictions on hours. The Commission held that this did not in any way undermine its own authority to implement measures which might achieve the same effect.

In the end, the City of Greater Geelong's case was held to be applicable only to its own jurisdiction. A different set of counter-arguments could be upheld in another municipality. Nonetheless, it was prepared to admit all evidence, including social and economic consequences, during the remainder of the hearing, scheduled for December 1999. In the meantime, the Golf View was to maintain its 5 a.m. closing time.

The repeal of the old Liquor Control Act and the introduction of new legislation has added to the uncertainty over the role of regulators, (such as Liquor Licensing Victoria), in applying social and economic criteria to the evaluation of decisions about gaming venues. The new *Liquor Control Reform Act 1998* is primarily concerned with the regulation of licensed premises and the sale and disposal of liquor. As such, like the Gaming Act, it deals with the approval of people involved in the management of licensed premises and, to a far lesser extent, the premises itself. The objects of the Liquor Control Reform Act have now been amended so that the relevant reference is now:

“To contribute to the responsible development of the liquor and licensed hospitality industries.”

There has also been a shift in emphasis in the Liquor Act from the concept of “community interest” to the concept of “amenity”. On the one hand, community interest is a far-reaching concept able to take in issues of social and economic impacts. Amenity on the other hand, while nebulous as a concept, is far less likely to suggest that social issues are within the ambit of the relevant considerations.

The Planning and Environment Act

One of the objects of the *Planning and Environment Act 1987* is to secure a pleasant, efficient and safe working, living, and recreational environment for all Victorians and visitors to Victoria. Section 60 of the Act stipulates that before deciding on an application, the responsible authority may, if the circumstances require, have regard to significant social and economic effects of the proposed development. It would appear that these provisions permit social and economic effects of gaming to be taken into consideration, at least to the extent that the impacts might impinge on planning issues. Thus, in the case of the *Uniting Church in Australia Property Trust (Vic) and Others vs. Moreland City Council*, the Tribunal said:

“There is no doubt in our minds that gaming and its ramifications constitute and raise important social and economic questions and that they have serious social and economic effects. Amongst these is the effect on individuals and families of excessive losses at gaming and the effect on agencies like those of the Uniting Church of Australia that seek to assist sufferers and to alleviate such problems.”

Of course the difficulty thus far is that there has been little hard evidence in relation to the impacts of a particular venue. As with the Liquor Licensing Commission, (now Liquor Licensing Victoria), the Tribunal proceeds on the view that general information or material as to the social harms of gaming cannot be used to justify the refusal of a permit in respect of a particular use or development because gaming is lawful in the State. Under clause 19.02 (new format) of the Planning Scheme, gaming is prohibited only in identified shopping complexes, and is limited in shopping strips.

In *George Phillips vs. Moreland City Council*, (1998/89409, heard 30 April 1999), the applicant sought a permit to expand the size of a bingo hall, adjoining which was a gaming room. The Victorian Civil Appeals Tribunal (VCAT), upheld a condition in the permit that required the operator of the licensed premises and gaming venue to install clocks in the gaming room. The Tribunal accepted the Council's submissions that the objects of the Planning Act, Section 60(2) of the same Act, and previous case law in relation to gaming venues, all supported a condition which required clocks as a basic harm minimisation tool. The Tribunal held that even though the expansions were taking place in the bingo hall and not in the gaming room, (which would remain unchanged with 100 machines), there would be increased traffic in the venue as a whole and this might give a boost to EGM throughput. Of particular relevance to the Tribunal's decision was the recently-prepared Moreland code of conduct on gaming which suggested various ways in which the harmful effects could be attenuated.

The Tribunal also gave prominence to charters for responsible gambling in the case of *Cascall Pty Ltd. vs. the City of Maribyrnong*. This was another instance in which a hotel (the Yarraville-based Victoria on Hyde) sought an extension of gaming hours, except that on this occasion Liquor Licensing Victoria was not involved. The hotel held a restricted hours permit issued when it was conducting renovations in 1996, and it sought to have the permit amended.

The Tribunal quoted from the City of Maribyrnong's interim policy on convenience gaming venues. The policy said that:

"It is likely that some existing EGM venues will seek an extension of hours, for which planning approval is required. The following factors will be important in considering such applications:

1. The applicant demonstrates by satisfactory evidence that the social and economic impact of the extension of operating hours will not be detrimental to the local community, including the aggregate economic and social well-being of local households, and will not have a detrimental impact on existing economic activity within the local area; and
2. A full range of facilities is available to patrons during the period of extended opening hours."

The applicant argued that Council's attempt to regulate or influence the gambling behaviour of its ratepayers was not a valid consideration in relation to the present application. He drew upon the decision in *Ashley Hotel Pty Ltd. vs. Banyule City Council* in which the Tribunal seemed to take the view that regulation was paternalistic (see comments in earlier section). The Tribunal stated that the comments it made regarding restrictions of rights of access to gaming were an aside and not integral to its reasoning. It said that it had expended considerable effort in analysing the empirical data placed before it concerning the socio-economic impact of gaming, but was not satisfied that the additional gaming facilities to be introduced in the locality (Banyule) would cause an increase in problem gambling as alleged by the Responsible Authority and its detractors. In that instance, problems peculiar to the locality could not be identified, as distinct from the more general effects of increased gaming facilities within the wider community.

In the context of the Maribyrnong application, the Tribunal said it wasn't convinced that a link between the current proposal and socio-economic problems could be demonstrated by the Responsible Authority. However, it held that in view of the significant level of socio-economic disadvantage in the locality (as demonstrated in a report prepared by the Council), it would be appropriate to support the Maribyrnong charter for responsible gaming. The burden would thus fall on the applicant to demonstrate that additional problems associated with gaming would not arise from the extension of hours. The applicant's appeal would therefore be disallowed unless it resolved to produce more fulsome information concerning socio-economic impact within a reasonable period of time.