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An Assessment of the Impact of Gaming Machines on Small Regional Economies

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Editor's Note

Welcome to the third issue of *Economic Issues*, a series published by the South Australian Centre for Economic Studies as part of the Centre's Corporate Membership Program. The scope of *Economic Issues* is intended to be broad, limited only to topical, applied economic issues of relevance to South Australia and Australia. Within this scope, the intention is to focus on key economic issues — public policy issues, economic trends, economic events — and present an authoritative, expert analysis which contributes to both public understanding and public debate. Papers will be published on a continuing basis, as topics present themselves and as resources allow.

This third issue of *Economic Issues* presents an analysis of the economic and social impact of electronic gaming machines on the Provincial Cities in South Australia. The discussion builds on studies conducted for the Provincial Cities and on-going research within the Centre.

The authors of this paper are Mr Michael O'Neil and Mr Steve Whetton. Michael O'Neil is Director and Mr Steve Whetton is a Research Economist of the SA Centre for Economic Studies.

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Cliff Walsh
Professor Emeritus
University of Adelaide
April 2002

An Assessment of the Impact of Gaming Machines on Small Regional Economies

Overview

This Issues Paper summarises results of a study designed to identify the economic and social impacts of electronic gaming machines (EGMs) in the council areas that are members of the Provincial Cities Association of SA.*

A number of different perspectives on the impact of EGMs were examined. However, the principal quantitative results of the Centre's study build on an analytical approach adopted by the Productivity Commission (PC) in its 1999 Report on Australia's Gambling Industry. This recognised that: on the one hand, *benefits* accrue to recreational (non-problem) gamblers from access to EGMs and also to the wider community from the use of EGM tax revenues — social benefits estimated by the PC to lie in the range $2.8b to $3.7b for Australia as a whole. On the other hand, *costs* to individuals, families and communities arise from the behaviour of problem gamblers — social costs estimated by the PC to lie in the range $2.2b to $5.2b, nationally.

Overall, the PC concluded that the availability of EGMs made a *net* contribution to national well-being in the range +$1.1b to -$2.6b. Despite the distinct possibility that the *net* impact of EGMs could be negative, the PC suggested that public policy needs to balance two realities:

- community benefits are significant and governments should not overly regulate the industry; but
- the scale of social costs are such that governments should investigate (targeted) measures to reduce them.

Based on a detailed analysis of expenditure data on EGMs in the Provincial Cities and elsewhere in SA, the Centre estimates that:

- for the Provincial Cities in aggregate, the *net* impact on community well-being of EGMs is negative — in the range -$0.6m to -$43.6m — even assuming that EGM tax revenues are fully returned to where they are raised: in only 3 of the 9 council areas covered by the Provincial Cities does the range of net impacts include a positive upper bound (Loxton-Waikerie, Port Pirie and Whyalla) and in only one (Loxton-Waikerie) do the balance of probabilities suggest that a non-negative net outcome is likely; and

* The members are the Cities of Mt Gambier, Murray Bridge, Pt Pirie, Whyalla, Pt Lincoln, Pt Augusta, plus the three council areas comprising the Riverland region - Berri-Barmera, Loxton-Waikerie, and Renmark-Paringa. For statistical purposes, Mt Gambier was combined with DC Grant for which it acts as a service area.

- for SA as a whole, the net impact of EGMs lies in the range +$44.4m to -$213.3m.

Key factors underlying these results include the facts that:

- annual net gaming expenditures per head of adult population are above the State average in 8 of the 9 Provincial Cities (Loxton-Waikerie being the exception), even though incomes per head are lower than the State average in all but 2 of them (Mt Gambier/Grant and Port Lincoln); and
- the Centre has estimated that there is a higher prevalence of problem gamblers in the Provincial Cities (2.81 per cent of adult population on average) than for SA as a whole (2.04 per cent of adult population), with only Loxton-Waikerie (1.38 per cent) below the State average.

The higher EGM spending in the Provincial Cities, and differences between the individual Cities, appear to be largely explained by both a higher prevalence of EGMs in the Provincial Cities and the influence on EGM spending of socio-demographic factors, especially the regional unemployment rate, the proportion of persons identifying as ATSI's and the proportion of dwellings rented from SAHT. The higher prevalence of problem gamblers can't be so confidently explained, but is likely to be significantly influenced by these same "risk factors", among others.

Higher spending per head on EGMs in the Provincial Cities, moreover, results in higher contributions to EGM tax revenues — $217 per adult in the Provincial Cities compared with $185 for SA as a whole. Unless per capita spending by the State government in the Provincial Cities has similarly expanded since the introduction of EGMs, there will have been a net loss of resources in the Cities, and our estimates of benefits to the Cities from EGMs will be overstated.

The policy conclusions that flow from the Centre's analysis need to reflect the PC's overall conclusion — achieving the benefits of EGM availability, while minimising potential harm — but also to recognise the geographical (regional) diversity of outcomes and, in particular, in the prevalence of problem gambling. Thus, banning EGMs is unlikely to be a preferred solution, even in the highest risk regions. Instead, consideration might be given to (among other things):

- regionally differentiated caps on EGM numbers, or even reductions in machine numbers (and/or their concentration among venues);
- increased access to gambling counselling services in some regional areas and/or investigation of strategies for particular high risk groups with a higher presence in regional areas (e.g., in particular, indigenous communities);
- return a higher proportion of identified EGM tax revenues to regional areas to ameliorate likely net resource outflows from them and/or offset losses to community organisations, recreation bodies and local charities from the decline in their income from minor gambling revenues.

1. Introduction

1.1 Background

Since their introduction into South Australian hotels and clubs[1] in 1994, electronic gaming machines (colloquially known as pokies) have enjoyed a much larger shift in consumer expenditure than was expected, with expenditure increasing from $0 in 1993 to $440 million in 1998-99. This increase represents a combination of reduced expenditures on other forms of gambling, switches in expenditure from other goods and services, reductions in household savings and expenditure sourced from rising income.

If all expenditure on gaming machines was "rational" then these shifts would be of little concern to policy makers (except perhaps the fall in household savings which may have long-term implications for the cost of capital) as in a dynamic economy shifts in expenditure due to changes in consumer preferences are to be expected. Indeed, as gaming machine expenditure has increased as a result of the removal of bans on their operation, this shift in expenditure would seem to indicate an increase in community welfare as consumers are now able to spend on a form of entertainment that they value more highly than those which were previously available.

... evidence indicates that not all expenditure is rational

Unfortunately, the evidence on the impact of electronic gaming machines indicates that not all expenditure on them is "rational", as some persons have difficulty controlling their gambling behaviour. The recent report by the Productivity Commission[2] found that approximately 2 per cent of the population falls into the category of 'problem gamblers', whereby some individuals gamble excessive amounts resulting in substantial emotional and financial impacts on the individual, their family, and the society at large. The impacts of problem gambling are multi-dimensional and numerous. They include, *inter alia*, family break down, costs of rehabilitation, reduction in work performance, financial hardship and, in the extreme, suicide.

Although this is only a small proportion of the population, the impact on problem gamblers and those they interact with can be severe, as evidenced by the Productivity Commission's finding that problem gamblers account for 42 per cent of total electronic gaming machine expenditure, with annual average spending of $10,700 per problem gambler.

1.2 Historical Data

... a substantial increase in total gambling expenditure.

Total national gambling expenditure grew slowly over the 1970s and early 1980s. With the liberalisation of gambling activities there was an acceleration of growth in gambling expenditure during the late 1980s followed by a very substantial increase in total gambling expenditure through the 1990s. By 1998-99, total national gambling expenditure was

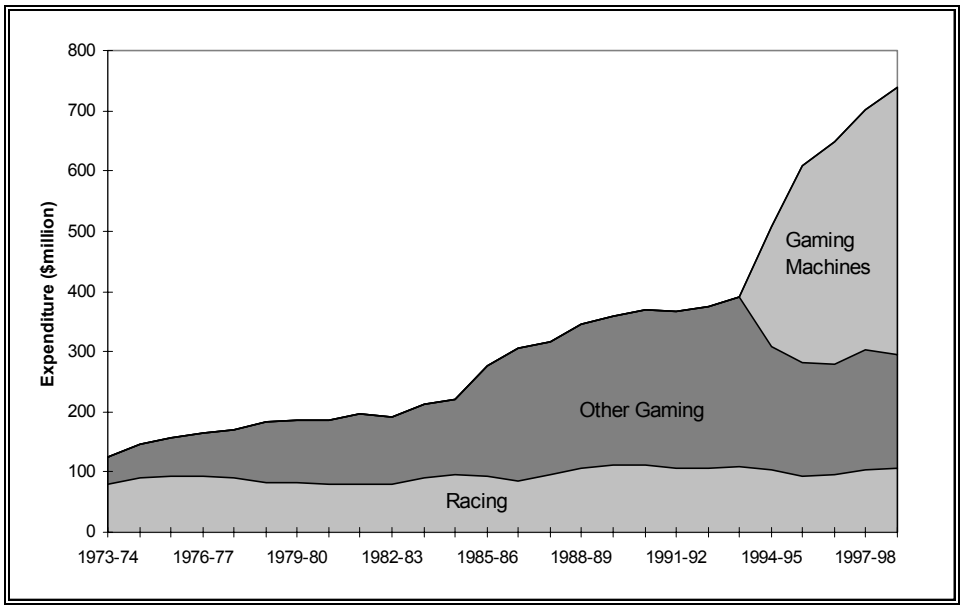
$12.4 billion.[3] A majority of this expenditure was accounted for by gaming machines ($6.9 billion), followed by spending on "other gaming" activities[4] ($3.9 billion) and racing ($1.7 billion).

... a massive increase in consumer spending on gaming in the decade.

The corresponding South Australian trends in gambling expenditure by broad sector are depicted in Figure 1.1. The introduction of gaming machines in 1994 induced a massive increase in consumer spending on gambling over the remainder of the decade. In real terms (measured in 1998-99 dollars), total gambling expenditure increased from $370 million in 1990-91 to $739 million in 1998-99, an effective doubling of real gambling expenditure over this period. By 1998-99, gaming machine expenditures represented 60 per cent of total gambling expenditures in South Australia. By comparison, gaming machines accounted for 55 per cent of national gambling expenditures in 1998-99. Like Australia, South Australian expenditure on all forms of racing has remained relatively flat over the period of investigation.

In a departure from the national trend, expenditure in South Australia on "other gaming" declined from 1993-94 following the introduction of gaming machines, as is starkly illustrated in Figure 1.1. This suggests that gambling on gaming machines has, in part, substituted for spending on other forms of gambling.

Figure 1.1
South Australian Gambling Expenditure By Type
1973-74 to 1998-99 ($ 1998-99)



Source: Tasmanian Gaming Commission, Australian Gambling Statistics, 1998-99.

Three initial observations and one important implication from the changing trends in gambling expenditure can be stated:

- South Australia's share of gaming machine expenditure is consistent with its share of all gambling expenditure, with South

Australia's adult population gambling less intensively than in other States. Expenditure per adult in South Australia on all forms of gambling was $650 in 1999 while the Australian average was $874 per adult (although this is partially explained by lower average household incomes);

- gaming expenditure in South Australia as a proportion of household final consumption expenditure was 1.75 per cent in 1999 (Australia, 1.9 per cent);
- there are implications for clubs, charities and community facilities in the dramatic decline in 'other gaming' expenditure which has occurred since the introduction of gaming machines. Following the introduction of gaming machines, expenditure on "minor gaming" declined by some 55 per cent. The impact on minor gaming is significant because this category includes forms of gambling employed by charities and social organisations to raise funds (e.g., Bingo, small lotteries).

... gaming machines are more prevalent and are accessible ...

The degree of penetration of gaming machines into the South Australian community is also an issue of interest. To the extent that gaming machines are more prevalent and are accessible to a larger proportion of the population, then the economic and social impacts of gaming machines are likely to be higher. For comparative purposes, trends in the growth of gaming machines and venues in South Australia have been compared against those for Victoria. The key features of the data are:

- there are 11 machines per 1,000 adult persons in South Australia, compared to 8 machines per 1,000 persons in Victoria;
- there are 50 venues per 100,000 persons in South Australia compared to 15 in Victoria; and
- expenditure per machine averaged $37,045 in South Australia in 1999 compared to $71,611 in Victoria, a comparison which is influenced by the cap on the number of machines in Victoria since December 1997, the actual number of venues and machines, and the mobility of machines within the Victorian gaming industry.

1.3 Considering the Impact of a Cap

The increased availability of gaming machines in South Australia (measured by the number of machines and the number of venues per capita) would suggest that South Australia is potentially more susceptible to the economic and social impacts of gaming machines relative to Victoria. However, the data indicates that despite implementing a cap on gaming machines in December 1997,[5] Victorian gaming expenditure per adult still continued to increase at an equal or faster rate than in South Australia over the following years. In fact, the cap on gaming machines, and their reduced penetration in general, appears to have simply resulted

in machines being used more intensively as the expenditure figures per machine quoted earlier would appear to confirm.

The mobility of machines between venues is cited as an important factor in expenditure density in Victoria. This is obviously not the case in South Australia and this would seem to suggest that the imposition of a cap or freeze could be more effective in reducing aggregate gambling expenditure.

... South Australia has never had a cap, but rather a date after which applications could no longer be accepted.

While South Australia has twice introduced a general cap on the number of machines, the actual number of machines approved and installed has continued to increase. This is because the way the cap has been implemented has allowed applications to be made (and later approved) up to the date of commencement of "the general cap". In that sense, the announcement of a cap has simply brought forward applications. Thus, South Australia has never had a cap, but rather a date after which applications could no longer be accepted.

Should South Australia seriously address or trial the introduction of a cap on the number of machines, then the experience of Victoria suggests that any general or regional cap would need to be monitored closely to assess the overall impact on aggregate gambling expenditure and any impact on problem gamblers in particular.

2. Taxation of Gaming

2.1 Reliance on Gaming Taxation

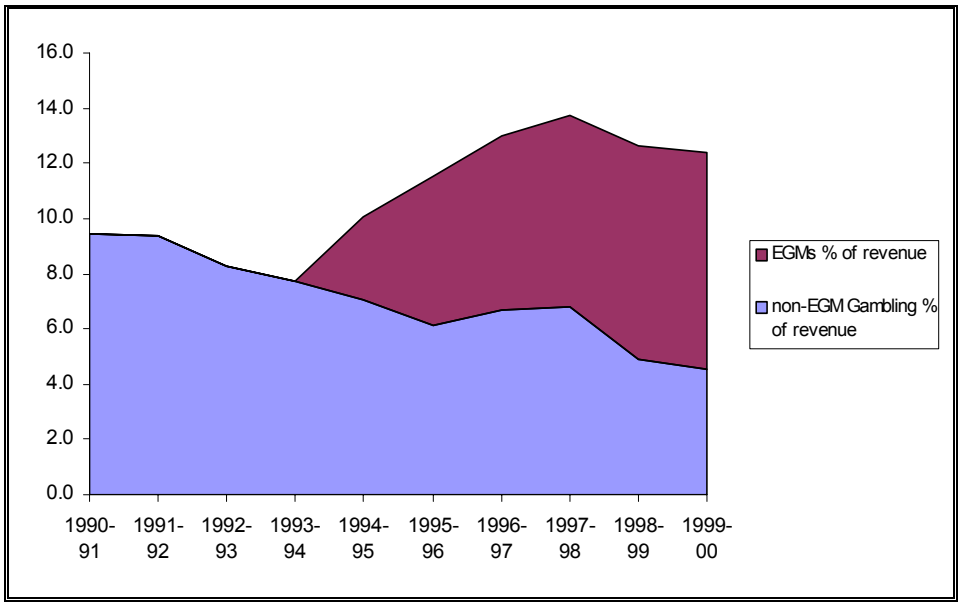
... taxation revenues have grown strongly ...

South Australian government taxation revenues have grown reasonably strongly over the last decade, increasing at an annual average rate of 7.6 per cent.[6] Tax revenues from gambling have been an important component of this growth, accounting for 15.5 per cent of the increase, despite only comprising 9.5 per cent of tax revenue in 1990-91. This increase in gambling tax revenue has been driven by the introduction of electronic gaming machines, as revenue from other forms of gambling actually declined by $10 million over the course of the decade.[7] The cumulative impact of taxes on gambling is shown in Figure 2.1.

Since their introduction in 1994-95, tax revenue from electronic gaming machines had grown to comprise 8 per cent of South Australian state tax revenues by 1999-00. Its influence is even more striking when considered in the context of taxes under the state government's control. Since franchise fees were deemed to be an excise in 1998 and consequently taken over by the Commonwealth[8], the pool of taxes under state government control shrank significantly. In this context, revenue from electronic gaming machines comprises 10 per cent of state government controlled taxes in South Australia.

South Australia is not alone, however, in the extent to which the state government has become reliant on revenues from gambling activities, particularly electronic gaming machines. Table 2.1 illustrates the changing proportions of State government revenues drawn from taxes on gambling, and electronic gaming machines in particular, over the last decade.

Figure 2.1
Cumulative Impact of Gambling Taxation on South Australian State Budget
Proportion of Taxation Revenue, 1990-91 to 1999-2000



Source: ABS, *Taxation Revenue, Australia* (5506.0).

From Table 2.1 it can be seen that only Victoria surpasses South Australia's dependence on electronic gaming machine revenues. It should be noted that as the data for taxation revenue for electronic gaming machines does not include machines operating in casinos, these figures are likely to understate the reliance of State governments on electronic gaming machines, particularly in states like Victoria, where the Crown Casino has a considerable number of machines and plays a significant role in the entertainment market in the city.

There is considerable variation in the influence of electronic gaming machines on State budgets, ranging from 0 per cent in Western Australia (where non-casino electronic gaming machines have not been introduced), approximately 2 per cent in Tasmania, around 6 per cent in NSW and Queensland, up to 10 per cent in Victoria. The proportion of government revenue from all gambling is much more consistent, with Western Australia being the only outlier.

2.2 The Equity of Gaming Taxes

As well as the concerns about the impacts on individual welfare of the increased level of problem gambling associated with the widespread availability of electronic gaming machines, there are concerns as the effect of gaming on income distribution. This is because it is thought that the taxation levied on electronic gaming machine expenditure is regressive.

Table 2.1
Government Taxation Revenue from Gambling and Gaming Machines as a Proportion of Taxation Revenue by State
1988-89 to 1998-99

Proportion of Government Revenue from All Gambling						
	NSW	**VIC**	**QLD**	**SA**	**WA**	**TAS**
1990-91	10.8	8.9	9.3	9.0	8.8	8.0
1991-92	10.2	8.6	9.8	8.5	8.5	8.1
1992-93	10.3	9.3	9.5	8.0	8.9	8.2
1993-94	10.4	10.5	9.9	7.4	8.1	8.1
1994-95	10.7	12.1	10.4	9.8	8.4	8.3
1995-96	11.1	12.6	10.5	11.2	8.9	8.4
1997-98	10.5	15.2	11.5	12.5	7.2	9.9
1998-99	9.9	15.3	12.2	13.0	6.4	10.2
1999-00	10.3	15.7	12.9	12.4	5.0	11.3
Proportion of Government Revenue from Gaming Machines						
	NSW	**VIC**	**QLD**	**SA**	**WA**	**TAS**
1990-91	4.5	0.1	0.0	0.0	0.0	0.0
1991-92	4.2	0.2	0.2	0.0	0.0	0.0
1992-93	4.3	1.6	1.6	0.0	0.0	0.0
1993-94	4.4	3.7	2.1	0.0	0.0	0.0
1994-95	4.9	5.3	2.2	3.4	0.0	0.1
1995-96	4.9	6.2	2.3	5.5	0.0	0.4
1996-97	4.6	7.1	2.4	6.4	0.0	0.7
1997-98	5.3	8.3	4.1	7.1	0.0	1.6
1998-99	5.9	9.0	4.9	7.9	0.0	2.3
1999-00	6.3	9.6	6.2	7.8	0.0	n/a

Source: ABS, *Taxation Revenue, Australia* (5506.0).

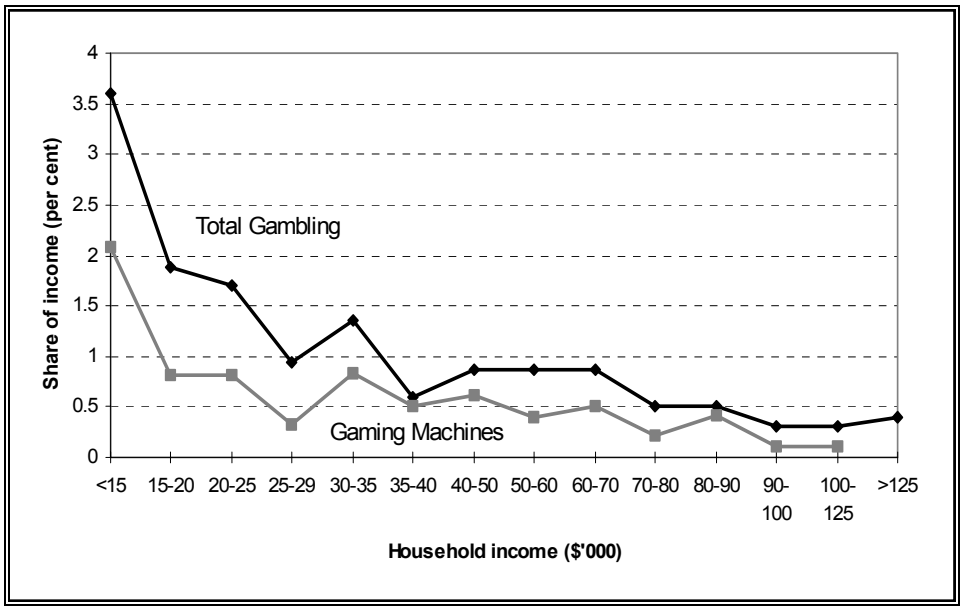
A tax is said to be regressive when the burden of taxation falls disproportionately on lower income households/individuals. Expressing this another way, a regressive tax is one in which the tax paid represents a smaller proportion of income for high-income earners than for low-income earners. From an equity and fairness standpoint, taxes which are proportional (i.e., the tax paid as a proportion of income is the same for all income groups) or are progressive (i.e., the tax paid as a proportion of income rises as income increases) are preferable to regressive taxes.

... gambling taxation is regressive ...

The Productivity Commission (1999) and Smith (1999) have both separately examined the equity impacts of gambling taxation and both conclude that gambling taxation is regressive. Figure 2.2, which uses data derived from the *National Gambling Survey*,[9] illustrates gambling

and gaming machine tax as a proportion of household income for Australia. Figure 2.2 clearly shows that both gambling taxation in general, and taxation on gaming machines, are regressive with tax as a proportion of household income being higher for low-income households. For example, for households with an income of less than $15,000 per annum, total gambling taxes equate to 3.6 per cent of household income compared to 0.6 per cent for households with an income of $35-40,000.

Figure 2.2
Gambling and Gaming Machine Tax as a Proportion of Household Income
Australia



Source: Productivity Commission, 1999.

... limited scope for reducing the burden of taxation ...

On gaming machine taxation, a Productivity Commission comparison of different gambling taxes found that taxes on gaming machines and lotteries were the most regressive forms of gambling taxation and therefore "provide the most cause for concern on equity grounds". The Commission subsequently recommended that any consideration for reducing gambling taxes to improve equity outcomes should focus on gaming machine and lottery taxes. However, the scope for reducing the burden on lower income groups by reducing taxation on gaming machines and raising other state taxes is limited, because almost all other State taxes are regressive and/or inefficient. Furthermore, lowering taxes on gaming machines may potentially increase gaming activity and therefore exacerbate problem gambling, which is a highly undesirable outcome. Alternatively, increasing taxes may actually increase the negative social and private costs of gaming machines if problem gamblers, who largely suffer from an addiction to gambling, are not deterred from playing gaming machines and suffer increased losses in the event that gaming machine taxes are raised (Smith, 1999). The conclusion here is that tax rates are a blunt instrument for addressing problem gambling.

The decision to pursue regressive gambling taxation sources rather than more politically sensitive progressive taxes (e.g., property and wealth taxes) may reflect the belief that because gambling taxes are voluntary, they are fairer (i.e., painless) and more acceptable to the community (Smith, 1999). However, both the Productivity Commission and Smith argue that consideration should be given to the negative equity impacts of voluntary forms of taxation when devising taxation policy. Smith also rightly disagrees with the argument that gambling taxes are entirely voluntary. Because problem gamblers are effectively addicted to gaming machines and lack self control over their gambling expenditures, their decision to spend on gambling cannot realistically be considered voluntary. Importantly though, problem gamblers account for very large share of total gambling expenditure (42 per cent of total electronic gaming machine expenditure), implying that gambling taxation is heavily concentrated among a small proportion of the population. This pattern of expenditure, whereby a substantial proportion of gambling taxation revenue is derived from addicted gamblers, clearly cannot be considered 'voluntary' or 'painless'. It also raises questions over the ethics of government who derive such a large share of their gambling taxation revenue from such a small and vulnerable segment of the population (Smith, 1999).

... problem gamblers account for a very large share of gambling expenditure ...

The regressive nature of gaming taxation also has an important regional dimension, as recognised by Smith (1999):

> "The concentration of gambling expenditure, and the disproportionate share in the incomes of poorer households, also has important geographic distributional implications. If low income populations and heavy gambler populations coincide in the same geographic area, the adverse social and economic impact of gambling will be heavily concentrated in particular localities".[10]

In this respect, the regressive nature of gaming machine taxation is important from a Provincial Cities' perspective because the Provincial Cities tend to have lower average incomes relative to the State average, with an average net income per adult of $13,493 compared to $14,292 for South Australia.

3. Why Is There Concern About Electronic Gaming Machines?

No agreed upon definition of problem gambling exists. However, on the basis of definitions reported by, and submitted to the Productivity Commission, the Centre defines problem gambling as the **excessive (irrational) gambling undertaken by an individual beyond their economic means, which subsequently gives rise to private (i.e., the individual and/or family) and/or social costs**. Problem gamblers are characterised by a variety of potential states; these include feelings of anxiety, depression or guilt over gambling, chasing losses, relationship

breakdown, financial difficulties, preoccupation with gambling, etc., (Productivity Commission, 1999). We might add feelings of loneliness and isolation, stress and tension.[11]

Many other terms have been used to describe problem gambling (e.g., 'compulsive', 'excessive', and 'neurotic'). Perhaps the most interesting is "pathological gambling" which classifies problem gambling as a diagnosable mental disorder. This definition applies to a smaller subset of the problem gambler population and has been more commonly used in other countries.

To the extent that the definition of problem gambling includes individuals who experience problems with gambling that results in significant private/social costs, but who are not formally diagnosed as pathological gamblers, it therefore seems reasonable to adopt the wider (i.e., more inclusive) definition of problem gambling.

The Australian Productivity Commission report *Australia's Gambling Industries* represents the most intensive and comprehensive effort to quantify the economic and social impacts of gambling in Australia.

... difficulty in estimating economic and social costs ...

After considering the variety of economic and social impacts attributed to gambling, the Commission estimated the net community impact of Australia's gambling industries to range from a net cost of $1.2 billion to a net benefit of $4.3 billion. The estimated range presented reflected the inherent difficulty of estimating the economic, and in particular the social costs of gambling where the latter occur primarily at an individual or household level, and are therefore often hidden. The primary economic benefit identified by the Commission was the increased satisfaction derived by consumers from increased consumption of gambling given the trend towards liberalisation of gambling activities over recent years. All social costs identified and quantified related to problem gambling.

The Commission adjusted both their estimate of costs and benefits (consumer surplus) between the draft report and the final report to give greater weight to the costs incurred by problem gamblers. In essence, they acknowledged the substantial case put forward by Blandy and Hawke (1999) that price elasticity for problem gamblers was less than the elasticity for non-problem gamblers. This altered "the unambiguous conclusion that gambling activities resulted in a net benefit to society to include the possibility that aggregate costs were possible "... [there] is now a widespread and intellectually defensible view that Australia's gambling industry may result in a net cost to Australian society".[12]

The costs of problem gambling are felt at an individual, family and social level. In this respect, the Commission (1999) identified the following costs of problem gambling. At the individual level, the cost of problem gambling is demonstrated by depression, anxiety, ill health and suicide which includes costs related to attempted suicide and thoughts of suicide. These impacts flow directly from the financial and relationship problems

caused by problem gambling. In turn, those costs that affect problem gamblers (depression, anxiety etc) may also affect family members. The Productivity Commission estimates that 7.3 people, including work colleagues, are adversely affected by every problem gambler. Based on latest prevalence data, which indicates that there are approximately 23,000 problem gamblers in South Australia (CPSE, 2001[13]), and the Commission's estimate, this implies that around 168,000 South Australians experience adverse effects due to problem gambling, but are themselves not problem gamblers. Further impacts on family members may be felt in terms of poverty, domestic abuse, and ultimately, family breakdown which results in the emotional and financial costs of divorce.

... costs of problem gambling ...

Problem gambling imparts costs on other members of society more broadly. For example, problem gamblers affect work colleagues and employers through reduced work productivity. In addition, unemployment due to inadequate work performance leads to employment replacement costs for the employer, employment transition costs for the problem gambler as they seek new employment, and financial costs to the government (i.e., taxpayers) through funding of unemployment benefits. Other costs at the broad societal level include bankruptcy (although there is an incentive not to attribute bankruptcy to gambling) and crime committed to support compulsive gambling behaviour which increases law enforcement costs. Further financial burdens to the public sector include the financial cost of counselling and support services provided by government and charities, and health services. Finally, problem gamblers may negatively impact friends if they borrow money to cover gambling losses.

While the Commission's focus was Australia's gambling industries as a whole, net community impacts were presented for the various forms of gambling as summarised in Table 3.1. It was concluded that gaming machines potentially contribute to significant social costs. This was due to a high degree of problem gambling being associated with this form of gambling.[14] The estimated net community impact attributed to gaming machines ranged from a net loss of $2.6 billion, to a net benefit of $1.1 billion.

Significant controversy was created by the Commission's inability to provide a narrow or accurate estimate of the net community impact of gambling activities. However, the Commission argued that the broad estimate was useful for policy purposes in the sense that:

- the magnitude of the social costs associated with gambling are sufficiently large, particularly for gaming machines and wagering, that governments should explore measures to reduce them, while
- the benefits are big enough that governments will not wish to lose them through overly harsh regulatory arrangements.

Table 3.1
Estimated Consumer Benefits, Social Costs and Net Impacts of Gambling
By Mode of Gambling, Australia - $ million (1997-98)

	Net Consumer Benefit		Net Social Cost		Net Benefit	
	Low	High	Low	High	Low	High
Wagering	629	885	267	830	-201	617
Lotteries	1,232	1,498	34	106	1126	1,464
Scratchies	219	266	24	74	145	243
Gaming Machines	1,617	2,491	1,369	4,250	-2,634	1,122
Casino gaming	581	771	48	150	431	723
Other	103	184	57	176	-73	127
All gambling	4,365	6,076	1,800	5,586	-1,221	4,277

Note: Net Benefit range calculated from high benefit minus low net social cost = high net benefit; low benefit minus high social cost = low net benefit.
Source: Productivity Commission, 1999.

The fact that the electronic gaming machine industry produces significant benefits for non-problem gamblers and government revenue, but imposes significant costs on problem gamblers is even more apparent when the Commission's estimates of consumer benefits and social costs are split between non-problem gamblers and problem gamblers. The pattern of benefits and costs between these two groups, as well as a breakdown of expenditure patterns is outlined in Table 3.2. In the context of this calculation, consumer surpluses and taxation revenue are net benefits, and excess expenditure and the social costs associated with problem gambling are net costs.

At a national level the net benefit from the activities of the 5.2 million non-problem gamblers is between $2.8 billion and $3.7 billion, a substantial benefit and supportive of the industry's continued operation. The effect on problem gamblers is, however, a significant negative feature of the industry. They experience a net benefit of between -$2.2 billion and -$5.2 billion, or between -$8,000 and -$20,000 per gambler.

Unfortunately the Commission was unable to provide State or regional estimates of the community impact of gambling, or gaming machines for that matter. However, several interesting themes did arise. Of particular interest was the potential link identified between the location of gaming machines and the socio-economic status of these areas:

> "the Commission found evidence of a concentration of gaming machines in areas of low socio-economic status in Victoria, New South Wales and South Australia (although not in Queensland). This in turn suggests that a greater proportion of residents in these areas are likely to be problem gamblers, and thus the social costs in these areas will be higher".

Table 3.2
Benefits and Costs of Expenditure on Electronic Gaming Machines, Australia

	High Elasticity[1]	Low Elasticity
Non-Problem Gamblers		
No. of gamers ('000)	5,196.6	5,196.6
Expenditure ($ million)	3,690.7	3,690.7
Consumer surplus ($ million)	1,419.5	2,306.7
Taxation revenue ($ million)	1,363.7	1,363.7
Net Benefit ($ million)	**2,783.2**	**3,670.3**
Net benefit per gamer ($)	**536**	**706**
Problem Gamblers		
No. of gamers ('000)	254.4	254.4
Expenditure ($ million)	2,710.1	2,710.1
'Recreational' expenditure ($ million)[2]	279.0	279.0
Adjusted consumer surplus[4] ($ million)	139.5	335.8
Taxation revenue ($ million)	1,001.3	1,001.3
Excess expenditure ($ million)[3]	-2,032.0	-2075.8
Social cost of problem gambling ($ million)	-1,369.0 to -4,250.0	-1,369.0 to -4,250.0
Net Benefit ($ million)	**-2,260.2 to -5,141.2**	**-2,063.8 to -4,944.8**
Net benefit per gamer	**-8,884 to -20,209**	**-8,112 to -19,437**

Notes: [1] In this context Elasticity refers to the Price Elasticity of Demand, a measure of the extent to which the quantity of a good purchased by a consumer changes in response to a change in price. A low price elasticity indicates that demand is relatively unresponsive to a change in price.
[2] Estimate of the expenditure which problem gamblers would have made if they were not addicted. The PC derived these estimates by assigning each problem gambler the lower of the average expenditure on gaming machines by all gamblers, or the problem gamblers own expenditure on gaming machines.
[3] The difference between the actual expenditure of problem gamblers and their "recreational" expenditure.
[4] Based on Recreational Expenditure.
Source: Productivity Commission, 1999.

... impacts felt more intensively in regional areas ...

This relationship does raise the prospect that the positive and negative impacts associated with gaming machines are felt more intensively in regional or country areas. While the Commission asserted that the types of economic and social impacts of gambling activities in country areas were not substantially different from those that occur in metropolitan areas, it did recognise the potential for significant differences in the net outcomes "at the regional or local government levels, especially when tax flows are taken into account".

4. Gaming in South Australia's Provincial Cities

4.1 Our Approach

The Centre sought to estimate quantitatively the overall net impact of gaming machines on regional economies (i.e., economic and social impact). The study extended from where the Productivity Commission's *Australia's Gambling Industries* study stopped — specifically, that the national estimate of the overall impact of gambling activities was of

'limited usefulness for policy' because, *inter alia*, "there are likely to be considerable differences in net outcomes among the States and Territories, and in particular, at the regional or local government levels, especially when tax flows are taken into account ...".[15] There are also significant differences between States and Territories in the ownership and structure of the industry and the mobility pattern of electronic gaming machines.

Accordingly, the Centre sought to:

- provide information to regional communities and their leaders on the economic and social impacts of electronic gaming machines;
- provide a balanced view of the overall impact by giving equal weight to the potentially positive and negative impacts; and
- employ a variety of methodological approaches to ensure that economic and social impacts were thoroughly assessed.

4.2 Regional Data and its Implications

This section analyses trends in gaming machine activity for the Provincial Cities. Total gaming machine expenditure for the Provincial Cities in 1999-00 was $56.2 million. Reflecting their larger populations, the Riverland[16] ($13 million), Mount Gambier ($11.9 million) and Whyalla ($8.1 million) had the largest gaming machine expenditures in 1999-00. Murray Bridge ($6.2 million) had the next largest expenditure, while Port Pirie ($5.7 million), Port Lincoln ($5.7 million) and Port Augusta ($5.6 million) all had a similar level of gambling expenditure.

... high gaming expenditure relative to the South Australian average ...

Examining expenditure per adult (Table 4.1) shows that the Provincial Cities have high gaming expenditure per adult relative to the South Australia average. Spending per adult was 43 per cent higher for the Provincial Cities relative to the South Australian average in 1995-96, although this had declined by 1999-00, so that the Provincial Cities had an average expenditure per adult of $539, some 27 per cent higher than the State average of $425.

With respect to the individual Provincial Cities, Mount Gambier had the highest expenditure per adult with Port Lincoln and Port Augusta also experiencing relatively high levels of gambling expenditure. Expenditure per adult is above the state average in all of the Provincial Cities.[17]

... reasons for above average gaming expenditure.

There are a number of possible reasons as to why the Provincial Cities experience above average gaming machine expenditure. As features of consumer behaviour do not have a single cause it is likely that the difference is due to some combination of the following factors:

Table 4.1
Gaming Machine Expenditure Per Adult ($)
Provincial Cities - 1995-96 to 1999-00

Area	1995-96	1996-97	1997-98	1998-99	1999-00
Riverland	409	455	454	489	522
Mount Gambier	532	582	621	654	700
Murray Bridge	330	395	434	456	489
Port Augusta	414	443	499	524	560
Port Lincoln	355	404	467	556	591
Port Pirie	359	384	382	419	431
Whyalla	404	430	434	470	481
Provincial Cities	408	449	471	509	539
South Australia	286	324	349	389	425

Source: Office of the Liquor and Gaming Commissioner and ABS, Population by Age and Sex, (3235.4).

- because of their demographics or regional economic profile the Provincial Cities have a higher proportion of problem gamblers than average; or
- non-problem gamblers have an above average expenditure rate in the Provincial Cities, either because of differences in demographics, or differences in tastes; or
- due to the smaller range of entertainment options available in the Provincial Cities compared to Adelaide, those options that do exist locally attract a higher proportion of expenditure.

The use of an aggregate figure for the Riverland also hides some of the variability in expenditure between the Provincial Cities. Despite having similar income levels[18] - $13,064 per adult for Berri Barmera and $12,960 for Loxton Waikerie - and the same number of gaming venues (7 each), these two Riverland council regions have significantly different levels of expenditure. Berri Barmera had the highest net gaming revenue (NGR) per adult of all the Provincial Cities in 1999, recording an expenditure level of $686 per adult. Loxton Waikerie by contrast recorded an expenditure level of $372, the lowest of the cities (and actually below the state average).

As income doesn't explain this difference, it would seem likely that it is due to differences in population demography which result in Berri Barmera having a higher proportion of problem gamblers, and/or non-problem gamblers having higher average expenditures.

4.2.1 Penetration and Intensity Rates

Both gaming machines and gaming machine venues are more prevalent within the Provincial Cities relative to the State, based on data provided to the Centre[19]:

- the Provincial Cities possess a higher number of machines per 1,000 adult persons at 18 machines, compared to a State average of 11; and
- all but Murray Bridge have a lesser number of adults per gaming venue than the State average, reflecting the intensity of gaming venues in the Provincial Cities.

A higher prevalence of gaming machines increases the exposure of the local population to gaming machines. In turn, this potentially increases the economic and social impacts of gaming machines. For example, if an increased number of gaming machines leads to greater gambling expenditure within the region, then the amount of income leaving the region through State government taxation will be higher. Hence, these issues are very important from a regional perspective as well as a State perspective.

.. greater gaming expenditure will be associated with a higher level of taxation revenue ...

As the Provincial Cities on average have a high level of gaming machine expenditure relative to South Australia, it follows that greater gaming expenditure will be associated with a higher level of taxation revenue, and therefore an increased amount of income potentially leaving the region. Aggregate gaming machine taxation revenue collected by the State government from the Provincial Cities in 1999-00 was $22.6 million.

The Provincial Cities contribute relatively more in gaming machine taxation, with the Provincial Cities averaging $217 in gaming taxation revenue per adult compared to $185 per adult for South Australia.

Expressing this in another way, the Provincial Cities accounted for 9.1 per cent of the State's population in 1999-00, while they were responsible for 10.7 per cent of all gaming machine taxation revenue. In effect, because the Provincial Cities spend more on gaming machines relative to the state as a whole, they make a larger contribution to gaming machine taxation revenue. In terms of per adult estimates, Mount Gambier ($287) had the highest taxation revenue per adult in 1999-00 while Port Pirie ($172) had the lowest taxation revenue per adult. Mount Gambier was followed by - in descending order - Port Lincoln ($246), Port Augusta ($222), Murray Bridge ($213), Whyalla ($207), and the Riverland ($188). Unless spending by the state government in the Provincial Cities has increased at an above average rate since the introduction of gaming machines, this could well have resulted in a net outflow of funds from the Cities.

4.3 Indicators of Regional EGM Expenditure

The Productivity Commission found evidence of concentration of gaming machines in lower socio-economic areas. In particular, they found an inverse relationship between a region's income and the total amount

spent on gaming machines. They also found a negative and significant relationship between median weekly income and average annual expenditure on electronic gaming machines for regions in South Australia. This could be seen as suggesting that persons in lower income groups:

- are more likely to gamble using electronic gaming machines; and/or
- are more likely to lose (spend) more when they do so.

This is not necessarily the case, however, as statistical correlation does not imply causation. It could just as easily be the case that expenditures and income are both related to some other factor, such as age.

The Centre was interested in testing the factors which influence the differences in net gaming revenue between different areas in an attempt to determine if there was a link between low incomes and electronic gaming machine revenue, or whether it was other factors which were influential. The regression technique used was ordinary least squares (OLS) regression, current council areas were used as the regions, and the dependant variable chosen was Average Net Gaming Revenue per Adult in each council area. As Mount Gambier acts as a service centre for neighbouring towns, data on the Mount Gambier council and the District Council of Grant was combined for the purposes of the econometrics.

A significant number of demographic and macroeconomic factors were included in the analysis but were eliminated from the final estimated equation as they were not statistically significant. The results of the analysis are summarised in Table 4.2. As can be seen from the various test of significance,[20] this equation is a good model of the factors influencing the level of Net Gaming Revenue per adult in South Australia, explaining 84 per cent of the variation in regional net gaming revenue.

Table 4.2
Influences on Net Gaming Revenue per Adult in Council Areas

	Coefficients	Standard Error	t Stat	P-value
Intercept*	-222.838	106.68	-2.09	0.0410
No. of Venues/km^2 *	273.261	58.53	4.67	0.0000
No. of machines/1000 adults*	11.731	2.19	5.36	0.0000
Ave disposable income *	0.015	0.01	2.86	0.0059
UE as a % of Adults*	27.559	11.42	2.41	0.0190
ATSI % of population**	9.596	5.23	1.84	0.0713
Proportion housing trust***	4.402	2.81	1.57	0.1227

* Significant at the 5 per cent level
** Significant at the 10 per cent level
*** Significant at the 15 per cent level
Adjusted R^2: 0.8431; F-statistic: 59.2307; Prob. F: 3.8 E^{-23}

... this is the opposite of the Productivity Commission finding ...

The econometric results indicate that there is a slight positive relationship between disposable income and average per adult net gaming revenue, implying that all other factors being equal, expenditure would be higher in a high income council area than in a poor one. This is the opposite of the results of the Productivity Commission's analysis, suggesting that it was the correlation between some or all of the five other demographic factors linked with low incomes which produced the apparent link between lower incomes and higher electronic gaming machine expenditure for South Australia.

The number of electronic gaming machines relative to the adult population, and the geographic concentration of machines in the council area are also influential factors in explaining differences in average net gaming revenue between councils. There are also several demographic variables associated with increased annual average net gaming revenue (the last three variables in Table 4.2). The significant factors are:

- higher unemployment as a proportion of adults;
- higher proportions of persons identifying as Aboriginals or Torres Strait Islanders; and
- higher proportions of residents living in dwellings rented from the Housing Trust.

... demographic profile supports the econometric results ...

The demographic profile of South Australia's Provincial Cities appears to support the econometric results. Eight of the nine Provincial Cities are above the state average in terms annual net gaming revenue per adult, but only two of the nine are above average in terms of income (Mt Gambier and Port Lincoln, both very marginally). This suggests that the higher expenditure is related to other "risk factors". Of the seven Provincial Cities with unexpectedly high annual net gaming revenue per adult all have above average unemployment, and six of the seven are above average for each of the proportion of Aboriginals and the proportion of dwellings rented from the Housing Trust.

The accuracy of the model is further supported if the two Riverland councils of Berri-Barmera and Loxton Waikerie are compared. Although the two have almost identical income levels, Berri Barmera has higher values for both the two 'density' variables and for the three demographic variables. As a consequence of this, despite the almost identical income levels, the model predicts that Berri Barmera would have an expenditure level 1.6 times that of Loxton Waikerie, not too dissimilar from the actual difference of 1.8.

4.4 Problem Gambling in the Provincial Cities

Applying national incidence data to South Australia's Provincial Cities would suggest that in aggregate they have 2,150 problem gamblers. The critical assumption required for these calculations is that the proportion of problem gamblers is constant across the country. This assumption was necessary as the Productivity Commission did not report regional data on the incidence of problem gambling.

However, the use of national prevalence estimates are unlikely to reflect the diversity of regional experiences. This means, that, for those regions with demographic profiles identified in Section 4.3 as 'high risk' in terms of gambling expenditure, these are likely to be lower bound estimates. For example, if national prevalence data was appropriate for Berri Barmera then, based on its expenditures, either the *average* problem gambler would have to have spent $22,000 per annum (national average $10,650) if non-problem gambler's expenditure was average, or the average non-problem gambler would have spent $1,240 (national average $710) if problem gambler's spending was average. Neither explanation (nor some intermediate point where both problem gambler and non-problem gambler expenditures are well above the national average) seems particularly credible given that average income for the council is below the national average. This suggest that the proportion of the population who are problem gamblers is likely to vary between regions.

The Centre believes that a more accurate picture of the extent of problem gambling in the Provincial Cities is required — and can be calculated — through using a variant of the gaming expenditure per problem gambler approach.

In order to try and address this problem, the Centre sought to devise a methodology whereby estimates of the incidence of problem gambling in a particular region could be produced from existing expenditure data. Full details of this methodology are available in the Centre's publication "The Impact of Gaming Machines on Small Regional Economies".[21]

The key results of this calculation are:

- the number of problem gamblers in the Provincial Cities is estimated at 3,097 (shown in Table 4.3); and
- the benefits and costs of electronic gaming machines for each region shown in Table 4.4, in the last two columns, are more strongly inclined towards the negative.

Based on the distribution of problem gamblers, all of the Provincial Cities except Loxton-Waikerie had substantial costs from problem gambling. If all the tax revenue were spent in the council from which they were collected, the benefits of this revenue would still be outweighed by the excess expenditure by problem gamblers alone.

Table 4.3
Prevalence of Electronic Gaming Machine Related Problem Gambling
South Australian Provincial Cities: 1998/99

	Adult Pop.	After tax income Per Adult	Gamers	Non-Problem Gamers	Problem Gamblers		Ave. loss per NPG[3]	Ave. loss per PG[3]
	(No.)	($)	(No.)	(No.)	(No.)	(% of Adults)	($)	($)
Berri Barmera	8,422	13,720.27	3,453	3,059	394	4.68	685.19	9,343.23
Loxton Waikerie	9,200	13,566.50	3,450	3,323	127	1.38	677.51	9,238.51
Renmark Paringa	7,174	13,526.58	2,941	2,732	209	2.91	675.52	9,211.33
Mount Gambier & Grant[1]	22,858	15,284.25	9,372	8,856	515	2.25	763.29	10,408.27
Murray Bridge	12,477	11,692.44	5,115	4,685	430	3.45	583.92	7,962.31
Port Augusta	9,936	12,833.11	4,074	3,709	365	3.67	640.89	8,739.09
Port Lincoln	9,474	14,399.07	3,884	3,566	318	3.36	719.09	9,805.48
Port Pirie	13,365	12,129.28	5,480	5,163	317	2.37	605.74	8,259.80
Whyalla (C)	17,120	13,195.45	7,019	6,599	421	2.46	658.98	8,985.84
Prov City Total	**110,025**	**13,493.16**	**44,788**	**41,692**	**3,097**	**2.81**	**673.85**	**9,188.57**
Adelaide Metro	**869,498**	**14,780.62**	**326,062**	**308,286**	**17,858**	**2.06**	**652.35**	**10,065.30**
Other Non Metro SA[2]	**154,496**	**12,140.33**	**51,957**	**49,715**	**2,241**	**1.43**	**606.29**	**8,267.32**
Total SA[2]	**1,136,019**	**14,292.20**	**422,807**	**399,693**	**23,196**	**2.04**	**648.87**	**9,732.70**

Notes: [1] For the purposes of these calculations Mount Gambier and Grant are treated as one region, as Mount Gambier is a significant service point for residents of Grant and much of Grant DC's electronic gaming machine expenditure is likely to occur in Mount Gambier.
[2] Other Non-Metro SA and SA Total does not include the unincorporated sections of Flinders Ranges, Lincoln, Murray Mallee, Pirie, Riverland, Whyalla, Yorke and Western.
[3] NPG = Non-Problem Gambler, PG = Problem Gambler.

Source: Productivity Commission, Liquor and Gaming Commission, ATO, and ABS calculations SACES.

Table 4.4
Benefits and Costs to South Australia of Electronic Gaming Machines
South Australian Provincial Cities: 1998/99

	Social Cost		Social Benefit		Total Net Social Benefit	
	Lower bound ($'000)	Upper bound ($'000)	High elasticity ($'000)	Low elasticity ($'000)	Lower bound ($'000)	Upper bound ($'000)
Berri Barmera	-5,539.2	-10,011.8	3,078.2	3,736.2	-6,933.6	-1,803.0
Loxton Waikerie	-1,775.9	-3,219.8	2,079.0	2,669.4	-1,140.8	893.5
Renmark Paringa	-2,909.2	-5,278.7	2150.4	2,674.7	-3,128.3	-234.5
Mount Gambier + Grant	-7,747.0	-13,591.4	7,762.9	9,612.4	-5,828.6	1,865.5
Murray Bridge (RC)	-5,493.6	-10,373.8	3,859.9	4,661.0	-6,513.8	-832.6
Port Augusta (C)	-4,923.1	-9,063.2	3,235.2	3,940.1	-5,828.0	-983.0
Port Lincoln (C)	-4,610.1	-8,222.2	3,465.4	4,212.6	-4,756.8	-397.5
Port Pirie (C)	-4,128.4	-7,718.4	3,592.5	4,453.8	-4,125.9	325.3
Whyalla (C)	-5,768.4	-10,538.4	5,313.2	6,516.7	-5,225.2	748.3
Prov City Total	-43,056.0	-78,178.7	34,538.7	42,483.4	-43,640.0	-572.6
Adelaide Metro	-264,547.0	-467,255.1	253,969.6	308,955.5	-213,285.5	44,408.5
Other Non Metro SA	-29,251.8	-54,674.7	30,546.9	38,568.4	-24,127.8	9,316.7
Total SA	-335,924.4	-599,212.3	319,033.0	389,959.9	-280,179.3	54,035.5

Source: Productivity Commission, Liquor and Gaming Commission and ATO, calculations SACES.

... we estimate the net benefits of gaming for the Provincial Cities as a group is unambiguously negative ...

Given the severity of problem gambling, for the Provincial Cities as a group, the range of net benefits to South Australia from electronic gaming machines estimated via our methodology extends from -$43.6 million to -$0.6 million. While non-problem gamblers enjoy substantial benefits from being able to gamble, these benefits are more than outweighed in five of the nine Provincial Cities by the scale of the costs of problem gambling. In Port Pirie and Whyalla the total net social benefit is almost entirely in the negative, while Mount Gambier and Grant (DC) trend more strongly to the negative. Only Loxton-Waikerie Council area seems as likely to benefit as to lose from gaming machines given the lower and upper estimates shown in Table 4.4.

These net benefit figures to the State as a whole are likely to be upper-bound estimates of the actual impact on the Provincial Cities themselves. This is because it is likely that the revenue from electronic gaming machines will be spent reasonably evenly throughout the State. As seven of the Provincial Cities have above average gaming expenditure it is likely that they receive less in net new spending enabled by taxation on gaming than is collected from their residents. The exception to this would be Loxton-Waikerie which has below average expenditure and hence probably receives more spending than is raised from its gamblers.

For other non-metropolitan areas the range of net benefits is more inclined towards costs than benefits but less strongly than in the case of the Provincial Cities, which reflects the more limited accessibility and reduced concentration of EGMs. For the State as a whole, while a net negative result is more likely, a net positive or neutral result is possible.

The pattern of negative impacts being regionally concentrated reinforces the idea that some form of regional restrictions may be desirable.

5 Recent Changes in South Australia

... acknowledgement of an increase in problem gambling ...

The Gambling Review Committee[22] reported to the government in March 2001 supporting the establishment a new Independent Gambling Authority (IGA) to provide controls, research and advice on gambling issues and the recommending the creation of a new Minister for Gambling. The then Premier (the Hon. J.W. Olsen) stated that "... there is no doubt that they [Poker Machines] have boosted the hotel industry while also leading to an increase in problem gambling".[23]

Following from the Committee's report the government announced a series of specific measures intended to reduce problem gambling, including *inter alia*:

- a freeze on gaming licenses for a further two years;
- a ban of autoplay facilities on all gaming machines;
- a ban of note acceptors on all gaming machines;

- the establishment of a daily limit on all cash withdrawals from ATMs and EFTPOS facilities at gaming venues;
- an increase in the minimum rate of return for new gaming machines from 85 to 87.6 per cent;
- the establishment of a barring register to be administered by the IGA; and
- mandatory codes of practice relating to advertising and promotional codes, the installation of clocks and a requirement to display gambling warning signs.

These initiatives combined with the concern of the Commonwealth Government in preventing problem gambling and its negative social impacts on the community,[24] signal a greater concern with developing appropriate responses to problem gambling and the consequences for individuals, families and communities.

The future success of these endeavours to address problem gambling are unknown. What they do signal is an acknowledgement that the "product" (i.e., EGMs) contain inherent dangers and higher levels of consumer protection and responsible industry practice will be demanded.

Recent changes should also be interpreted as an acknowledgement of the limitations of counselling and support services, as one component of any harm minimisation strategy, as problem gamblers either are reluctant to seek help, or only do so when substantial damage has been done. Imposing play limitations, via technological innovation, restrictions on hours of play and access to cash withdrawals and the provision of immediate feedback on losses sustained are designed to address the problem at its source. The sustainability of the gaming industry may depend on a comprehensive range of interventions such as those above.

6. Conclusion

There are two spatial geographic factors accounting for differences in average net gaming revenue — the number of EGMs relative to the adult population (per capita measure) and the actual concentration in a defined geographical area. Demographic factors which produce an apparent link between lower incomes and higher EGM expenditure in South Australia were higher unemployment as a proportion of adults, a higher proportion of persons identifying as Aboriginal or Torres Strait Islanders and a higher proportion of persons living in dwellings rented from the Housing Trust. This suggests that areas outside the Provincial Cities, such as Ceduna, are very likely to experience higher expenditure per capita based upon the risk factors identified above.

The state-wide benefit:cost analysis for electronic gaming machines outlined in Section 4.4 estimated a net social benefit for the State of between -$280 million and +$54 million, suggesting that because of problem gambling, the costs of electronic gaming machines are likely to outweigh the benefits.

The scale of harms that are believed to be caused by problem gambling supports the need for government intervention although we do not conclude that banning gaming machines would be the best policy outcome. What is required is a broader suite of harm minimisation options to reduce the social cost of problem gambling, whilst retaining as much of the benefit of their use by non-problem gamblers as possible. Any successful harm minimisation strategies are likely to have an impact on State government revenues given current research, that suggest over 40 per cent of all gambling revenues from electronic gaming machines are due to gambling by problem gamblers. In fact, a fall in revenue over time may be the critical indicator of any future success in addressing problem gambling. This in turn could create difficulties in balancing the State budget.

... consideration of regional caps and even reduction in machine numbers ...

The regional concentration of machines and the regional nature of costs also suggests that regional caps or even reductions in machine numbers, may well be a necessary component of any harm minimisation strategy. The effectiveness of the measures recently announced in reducing the number of problem gamblers will need to be closely monitored and evaluated.[25]

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End Notes

1 The allocation of EGMs in South Australia between hotels and clubs is 88 per cent of machines in hotels, 12 per cent in clubs (1998-99).

2 "Australian Gambling Industries", Productivity Commission (1999).

3 For the 1999-2000 year this figure had increased by a further $1b to some $13.3b or $931 per person. This equates to 3.5 per cent of household disposable income and is more than the total GSP of Tasmania.

4 This category includes all forms of gaming except gaming machines. Included are lotto, instant money, minor gaming such as bingo and casino gaming. For simplicity, sportsbetting has also been incorporated into "other gaming"

5 Victoria is trialling the impact of regional caps in five regions as of April 2001.

6 Measured over the period 1990-91 to 1999-2000.

7 The most likely cause of this decline is substitution from other forms of gambling (particularly lotteries and raffles) to electronic gaming machines, as the timing of the decline matches their introduction.

8 Prior to the ruling in *Ha v New South Wales*, it had been thought that the definition of excises (the collection of which is reserved for the Commonwealth in the Australian Constitution) did not include Franchise fees. For a useful discussion of the implications of this ruling and the extent to which it may, or may not, have accurately reflected the meaning of excise intended by the framers of the Constitution see, Williams, JM (1999), "Come in Spinner: Section 90 of the Constitution and the Future of State Government Finances", *Sydney Law Review*, 21:4, pp. 627-55.

9 Productivity Commission, *op. cit*.

10 Smith, "Australian Gambling Taxation", Australia National University, p. 16.

11 As reported to Gamblers Helpline and specialist counsellors.

12 Hawke, A., "Measuring the Impact of Gambling: An Economist's View", p. 5 & 8.

13 Centre for Population Studies in Epidemiology (2001), referred to as CPSE Report.

14 "Pokies are the most addictive and problem causing form of gambling", according to Professor D Mizerski, University of Western Australia.

15 Productivity Commission, Vol. 1, p. 33.

16 For the purposes of this discussion we have aggregated the data for the Berri-Barmera, Loxton-Waikerie and Renmark-Paringa local councils into 'The Riverland'.

17 Treating the Riverland as one region.

18 Based on ATO TaxStats Total Income minus Net Tax paid.

19 Office of the Liquor and Gaming Commissioner.

20 Adjusted R-squared is the most commonly used measure of significance for OLS regressions, measuring the proportion of the actual variation in the dependant variable explained by the estimated equation. The F-test statistic is a measure of the overall significance of the coefficients in the equation, hence the 'Probability F' is the probability that all of the coefficients other than the intercept are zero.

21 "The Impact of Gaming Machines on Small Regional Economies", available at www.adelaide.edu.au/saces

22 Established in January 2001 to advise the government on legislation and regulation across all gambling codes.

23 Hansard, 5th April, 2001.

24 The Commonwealth has established a National Advisory Body on Gambling (28th April, 2001).

25 The Centre is currently conducting research and evaluation into the effectiveness of regional caps introduced in Victoria in April 2001.