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Editor's Note

Welcome to the third issue of , a series published by the South Australian Centre for Economic Studies as part of the Centre's Corporate Membership Program. The scope of 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 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.

The Centre gratefully acknowledges the financial support of its Corporate Members, which enables the preparation of these papers.

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, 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, 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 contribution to national well-being in the range +$1.1b to -$2.6b. Despite the distinct possibility that the 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 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.

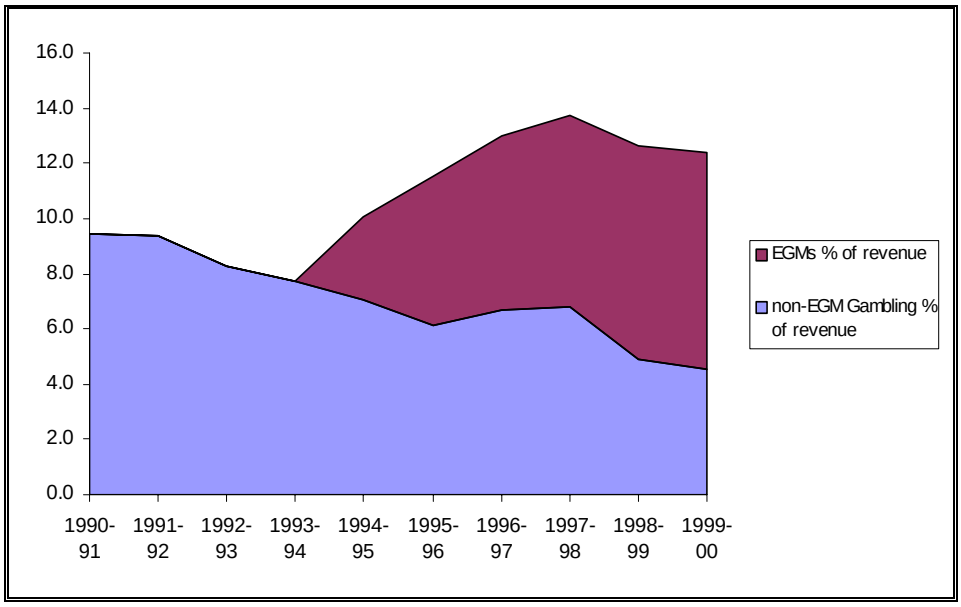
Key factors underlying these results include the facts that:

- 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
-

1. Introduction

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, (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

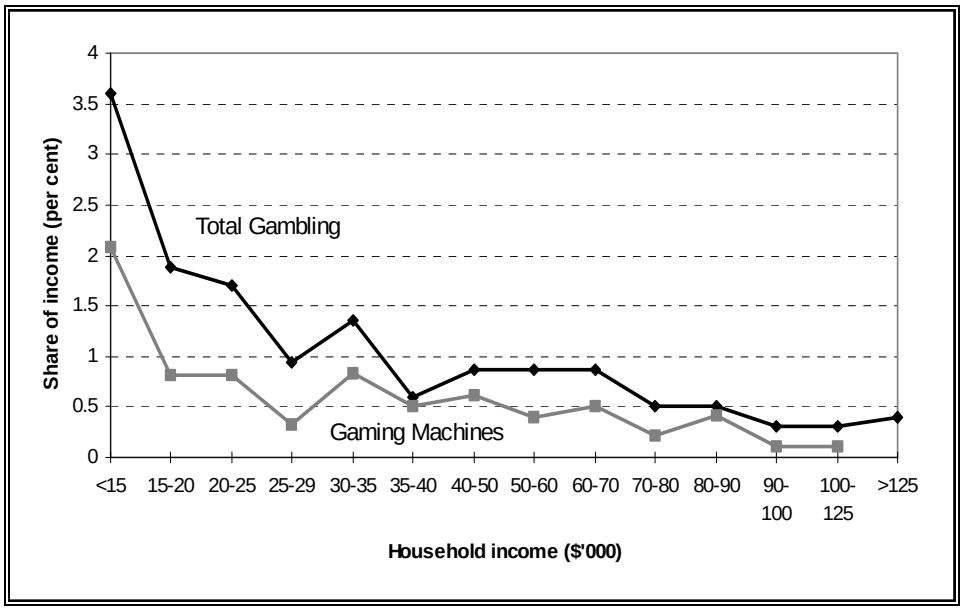
As well as the concerns about the impacts on individual welfare of the increased level of problem gambling associated with the widespread availability of electronic gaming machines, there are concerns as the effect of gaming on income distribution. This is because it is thought that the taxation levied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

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.

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

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).

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.

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.

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

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

'limited usefulness for policy' because, , "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

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

- 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.

spent on gaming machines. They also found a negative and significant

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.

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 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.	2. &	

- 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

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