

# **Electronic Gaming Machines in Bendigo 2008**

## **– assessing their economic impact**



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## **Executive Summary**

The study sets out to isolate the electronic gambling sector from food and beverage sales and club activities and assess the net economic impact of electronic gaming machines (EGMs) on the regional economy of Bendigo. This approach assumes that food, beverage and club activities all occurred prior to the introduction of EGMs and would continue in the unlikely event of the removal or drastic cutback of the electronic gambling sector. It follows an earlier study (Pinge 2000) that examined similar issues through regional economic modelling. Much more attention is given in this study to the underlying features of the electronic gambling industry sector which determine its relatively weaker performance as an industry sector. A number of surveys of gamblers in Victoria, including EGM gamblers, have been carried out since the last study and the important information they have provided has been incorporated into the study.

The main finding of the study is that the switch in expenditure in Bendigo towards EGM gambling costs the region an estimated \$20.542 million and 207 jobs. This results from the very weak performance of the EGM gambling sector in terms of very low levels of job intensity when compared with any other sector along with the very low levels of inputs purchased by this sector. These effects are accentuated regionally as a consequence of the very high leakages in regional spending by way of excessively high levels of taxation flowing to the State Government and profits leaking to the machine operators (Tattersalls and Tabcorp).

In the absence of local data, the number of problem gamblers in Bendigo is estimated to be 3,660 which are based on statewide data. It is estimated that these problem gamblers lose at least \$17 million or 39% of the total revenue accruing to this sector. The social costs of problem gambling have been estimated to cost the Bendigo Region \$37.490 million on top of the losses due to the poor performance of this industry sector. This figure does not include the costs to the region in terms of relationship breakdown and the impact on family life. Any benefits gained from this industry sector are very small in comparison to the costs incurred. The total annual cost of EGM gambling in Bendigo is estimated to be \$58.032 million.

It is argued that direct intervention is required in this sector due to the failure of markets to deal with the social costs and given the very high percentage of revenue (39%) associated with addictive behaviour.

## Sources of data in the gaming sector.

	Adult Population	No. Venues	No. EGMs*	Total Net EGM Expenditure (Revenue) \$M	Average EGM Expenditure per Adult	Net Revenue per Machine
Victoria	3,979,244	522	27,279	\$2,543m	\$639	\$93,228
Country Victoria	1,068,389	389	7,447	\$540m	\$505	\$72,521
Bendigo	74,851	10	547	\$43.479m	\$580	\$79,486

**Table 1: Electronic Gaming Machine (EGM) numbers and Spending, Victoria (Victorian Commission for Gambling Regulation) (VCGR)**

\*Excluding 2,500 EGMs at Crown Casino

While information such as data relating to the number of electronic gaming machines (EGMs), venue data and net revenue shown in Table 1 are readily available from the gaming regulator in Victoria, no data on average venue operating costs, sources of revenue or profits is provided. Such data would provide a valuable insight into this highly regulated industry which is linked to a very tight duopoly of gaming machine operators.

Use of national survey material regularly collected by the ABS (8687.0 - Clubs, Pubs, Taverns and Bars, Australia, 2004-05) was used as a basis for determining gaming sector performance and used as a basis for comparison with other industry sectors. The tables provide a comprehensive insight into the industry sector including data such as employment and a breakdown of running costs for those establishments with, and those without gaming facilities. The tables also isolate the earnings from gambling activity and distinguish between the number of non-gambling and licensed gambling staff which allow for the easy extraction of gambling sector data. A breakdown of expenses including advertising, energy use, insurance and sub-contract expenses was not available so these had to be apportioned between gambling and non-gambling activity which may have made the gambling sector look better than it really is in terms of putting expenditure back into the local economy.

Details of gaming expenditure in Bendigo for 2006/7 (VCGR) and the percentage of costs such as labour, advertising, insurance etc. extracted from the ABS Tables were fed into a 17 Sector matrix extracted using REMPLAN economic modelling software where two sectors were combined to allow the insertion of a Gaming sector into the model. This was necessary because there is no separate sector available in national input-output tables in

Australia where gambling and sport are combined. The model was then ready to extract data on the relative performance of the Gaming sector and compare it with a number of other industry sectors as set out below.

The other gap in data has to do with the source of gaming expenditure. The folly of the “saving hypothesis” where it was claimed that all gaming expenditure came out of personal savings is argued below. An earlier study (Pinge 2002) on the first four years of EGM gambling found that particular sub-sectors of retail trade associated with durable and household goods and clothing were affected by the introduction of electronic gaming machines. Anecdotal evidence in particular areas supports such findings. This was supplemented by data available in surveys of Victorian EGM gamblers who were asked, among other things, about sources of gambling expenditure and how they would otherwise have spent their money (VGR 2000 and 2003).

### **Industry Definition**

This study will examine hotels and clubs offering electronic gambling facilities for customers. The area under consideration is that covered by the boundaries for the City of Greater Bendigo and includes ten venues made up of clubs and hotels. Following the lead of the Australian Bureau of Statistics, the gambling part of these businesses will be separated from other services including accommodation, food, bulk liquor and beverage services. It is arguable that these services were provided before EGMs were introduced into Bendigo and would continue to be supplied if EGMs were taken away. Some industry studies have tended to merge the range of services offered in an attempt to exaggerate the benefits of electronic gambling.

The activities of these venue operators will be separated from those providing machines (Tattersalls and Tabcorp) that are commonly referred to as machine operators in Victoria, given the separation set up under Victorian legislation which in effect, redistributes some of the excessively high profits earned by EGMs, out of regional areas.

## The Gaming Sector - Relative Performance

It has often been assumed by economists engaged in cost benefit analysis that any switch in expenditure from one industry sector to another will be a zero sum game. That is to say that the loss of spending and welfare in one sector will be matched with similar gains in spending in another. Any changes in performance would result from higher relative levels of profit or social costs or benefits. It will be argued that the concept of a zero sum game is certainly not appropriate when the gaming sector is one of the sectors under scrutiny.

From a national and regional economic perspective, the EGM gambling sector is a poor performer relative to other industry sectors. Working from Table 2 which is based on data for Bendigo extracted from REMPLAN. It can be seen that this is a very capital intensive sector which uses very little labour for every million dollars of output. As a consequence, a shift in spending away from activities such as retail activity or accommodation, cafes and restaurants towards gaming will lead to a fall in employment in the national, state or regional economy. While the model gives a labour intensity figure of 6 workers per million dollars of total revenue, another study put this figure as low as 3 workers (VCGR 2005). Any shift in spending towards EGMs will clearly lead to a fall in employment.

SECTOR	GAMING	RETAIL	ACCOM , CAFES & RESTAURANTS
<b>Labour Intensity Jobs per \$1M Revenue</b>	<b>6</b>	<b>10</b>	<b>7</b>
<b>Inputs as % of Revenue</b>	<b>6</b>	<b>36</b>	<b>39</b>
<b>Imports as % of Revenue</b>	<b>47*</b>	<b>32</b>	<b>12</b>
<b>Taxes as % of Revenue</b>	<b>27</b>	<b>15</b>	<b>11</b>
<b>G.O.S. as % of revenue**</b>	<b>19.9</b>	<b>14</b>	<b>12</b>

**Table 2: Relative Performance by Industry Sector - Bendigo**

\* mainly payments to gaming machine operator (Tattersalls or TAB)

\*\* mainly distributed and undistributed profits.

The EGM gambling sector is also a relatively small purchaser of inputs and does not require large quantities of inputs as part of its productive process. Only 6% of its total revenue is likely to be spent on local inputs in contrast with the other two sectors (retail

and accommodation, cafes and restaurants) which spend 36% and 39% respectively. In this case, a shift in spending towards EGM gambling will be expected to lead to a fall in demand for local intermediate goods and services whether this is at the national, state or regional level of the economy.

When it comes to the regional economy, there is also a much greater leakage of spending out of the region for the EGM gambling sector as a consequence of the higher percentage spent on regional imports. This is mainly a result of the large payment made to the machine operators (33% of total revenue) which helps take total imports to a very high 47% of total revenue lost to the regional economy contrasted with figures of 32% and 12% for the other two sectors. Any shift towards EGM gambling would be expected to increase leakages out of the region and lead to lower levels of output and employment.

There is a similar leakage of spending associated with the EGM gambling sector as a consequence of the high percentage of taxes associated with this industry sector. Once again, the high level of taxation levied on EGM gambling (25% to 33%) is much higher than related taxes for the other two sectors (15% and 11%). A switch towards EGM gambling is again likely to lead to a reduction in revenue to circulate around the regional economy.

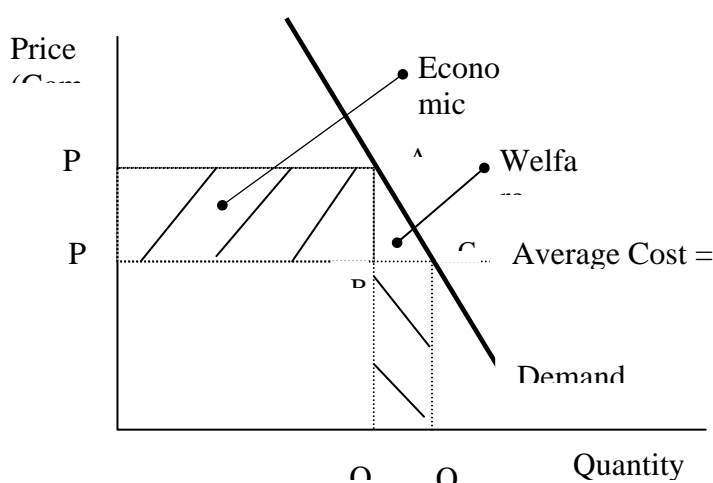
It should be pointed out that a small proportion of the revenue leaking out of the economy will be returned to the region. EGM operators will spend an amount maintaining and servicing their machines locally and offering venues assistance with marketing and promotion. This expenditure should not include services provided by people living in Melbourne or in other regions other than Bendigo. The amount re-entering the region would be expected to be a very small percentage of the total revenue taken out in the first place. There will also be a small amount returned as dividends to those in the region holding shares in the two machine operating companies. Similarly some of the revenue taken out of the regional economy by the State Government will reappear in the form of assistance for problem gamblers, spending including that of the Community Support Fund and even a lowering of other forms of taxation. At a time of record high State budget surpluses and rising property prices, the prospect of lower state taxes such as stamp duty is not apparent.

## **Excessive Profit Levels from EGMs and the Issue of Income Redistribution**

Whenever a particular industry is able to levy profits much higher than those in competitive industries, income will be redistributed. The most amazing feature of the EGM gambling industry sector is the very high level of Gross Operating Surplus (mainly profit) earned locally from gaming machines at 19.9%. Add to this a disproportionate level of taxation on this product together with the amount handed over to the gaming machine operators and the high profits of their gaming machine operations which are estimated to be \$520 million or \$1,906 per EGM (Tabcorp Holdings 2007) and we see abnormal levels of profits in the gaming sector all coming out of a number of small machines, each one generating an average revenue of \$80,000 per year with relatively small labour and input costs. The loss in profits from Bendigo to metropolitan machine operators is calculated to be a further \$1.043 million after all possible costs have been deducted.

There would be a massive outcry if these profits ratios were applied to supermarkets or petrol outlets for very good reason. The effect of high levels of profit can be seen in Figure 1. The price and quantity of gaming is very difficult to ascertain. EGMs must return a minimum of 87% of gambling turnover over a period of time by regulation, so for every \$1 played, the gaming machine takes a maximum of \$0.13. This could be one way of looking at the price of gambling. From another perspective, players' satisfaction appears to be linked with the time spent playing the machine. Unlike other service industries such as law or cleaning it is impossible to determine an hourly rate due to the variation in the bet chosen by the gambler. On a simple one cent machine, the stake can range from 1 cent per spin to betting 30 coins playing a total of 30 rows giving a single bet of \$9.00. For the sake of ease of explanation, EGM gambling will be initially treated as a "normal" good with an easily definable price and quantity, a point that will be re-examined later when the social costs of gambling and the extent of rational versus addictive behaviour will be discussed. In a competitive environment, the price set would be at the level  $P_c$  in Figure 1 where "normal" profits would be earned and the quantity traded would be at level  $Q_c$ . Monopoly power will raise price to  $P_m$  and quantity will be reduced to  $Q_m$ . The loss to consumers is area  $BCQ_cQ_m$  as a consequence of the higher price and lower quantity consumed. The gain to the producers in the form of economic profits over and above normal profit is area  $P_mABP_c$ . Because consumers are denied their first preference, there is a loss in welfare or benefit shown in the triangle  $ABC$ .

Overall we can see wealth redistribution from players to producers (clubs, hotels and machine operators) away from consumers as a result of considerably higher levels of profits in this industry. Gamblers who are club members may receive a small benefit or no benefit at all while hotel patrons will see additional profits going to the owners of these businesses, the machine operators and taxes. People in regional areas will also see a proportion of profits going out of the region to provide profits for Tabcorp and Tattersalls shareholders. A smaller proportion of those profits might even come back to the region in the form of company dividends, but probably not to the players of gambling machines.



**Figure 1: Gaming - the effect of high profits**

Higher than average levels of taxation will have a similar effect on the price quantity and income redistribution and may or may not generate local benefits. Taxes collected from EGM gambling can be judged to be basically regressive given the extent that gaming machine operators and venue operators have targeted lower socio-economic areas. So while all citizens may benefit from revenue raised, this will be to the cost of EGM players, many of whom represent lower socio-economic groups with at least one third of the revenue coming from the addictive behaviour of pathological gamblers.

In conclusion, any switch in expenditure towards EGM gambling or away from gambling is far from a zero sum game. Any shift in spending towards EGM gambling will cost the



national, state and regional economy jobs as a consequence of the very low level of labour intensity for EGM gambling compared to other sectors. It has also been shown that the EGM gambling sector is a very small purchaser of inputs so, once again, any switch in spending towards EGM gambling will lead to a fall in demand for intermediate goods and services. Consequently any flow-on effects via the multiplier effect will be considerably smaller in terms of both output and employment at the national, state or regional level. The abnormal level of profitability will impact unfairly on players of EGMs. Profits will flow to clubs, hotel owners and gaming machine operators and away from players who are over represented in lower socio-economic groups. This will reallocate wealth away from players and distribute this to clubs, a small group of venue operators and to machine operators and their shareholders. The very high levels of taxation mean that the general community will be likely to benefit in some way at the expense of many who are least able to pay. Such a tax must be viewed as a regressive one which reverses basic principles of taxation where those on higher income levels are expected to contribute to the care of the less fortunate in society.

Add to this the leakages in spending from regional areas as a consequence of higher levels of imported services and higher levels of taxation and it should be no surprise that economic activity in the form of regional or neighborhood jobs and output will suffer as a result of rising gaming expenditure and a consequent drop in expenditure in other sectors.

***All in all, gaming is a very poor performing and parasitic economic sector which offers very little to national, state and particularly regional and local economies compared with any other industry sector.***

## **Quantifying the Economic Impact of EGM Gambling Using Economic Modelling**

REMPLAN economic modelling software based on input-output modelling was then used to trace the initial or direct effects and the consequent flow-on effects of the gaming sector. It was then possible through hypothetical extraction (the theoretical shutting down of a sector) to compare the relative performance of EGM gambling in comparison with spending the same amount in other industry sectors.

### **Other Related Studies**

It should be noted that the results of this exercise in regional economic modelling bring out different results to modelling auspiced by the Victorian regulator (VCGR) in 2005. The 2005 study concluded that increased gambling expenditure in Victoria increased employment in Victoria and Australia. Reasons for any variation in results will include the following:

- (i) The study was statewide and not a regional study so more of the losses in regions will be captured at a State level.
- (ii) The modelling was based on national and Victorian general equilibrium models which use input output modelling as a foundation before adopting more “heroic” assumptions about economic behaviour using data such as labour markets, price and output elasticities, many which are more than 20 years old.
- (iii) The study referred to an earlier work that suggested gambling expenditure for 1991-2 was financed by reductions in the Victorian savings ratio.

The extent to which the savings assumption was implanted into the modelling was not stated. The assumption that most gambling expenditure came out of personal savings has often been thrown up by the EGM industry to allay fears of negative economic impacts and has been part of a longstanding debate as to whether those targeted people in lower socioeconomic areas have had much in the way of savings to fund their gambling activities. Rising general levels of personal debt pose the question of just what proportion of gambling expenditure came out of personal savings. More likely is that consumers have had to switch from other forms of spending to fund most of their gambling expenditure or

go further into debt which would also be expected to reduce other levels of expenditure in the medium to longer term.

Given the capital intensive nature of the EGM sector, the relatively low level of inputs and the very high levels of profit, it is difficult to see how a switch in spending towards EGM gambling could be anything but economically detrimental in terms of employment and output at any level of the economy. The only obvious way to show an economic gain resulting from EGM gambling would be to adopt a savings hypothesis or factor in activity associated with food, beverages and retail liquor sales.

Another study of the regional impact of EGMs came out with positive regional economic effects (ACIL 2001). It should be noted that this study was industry funded. By combining the employment effects of EGM gambling with those of people employed in the food, beverage and retail liquor sections of venues, they were able to show that venue employment had increased. What they had omitted to consider was the fact that people ate, drank and purchased liquor long before EGM gambling began. Gaming venues had simply taken over some of this trade. Measures of satisfaction were also factored into the listed benefits of EGM gambling with problem gambling behaviour defined as rational, a serious flaw in analysis, given that more than one third of the total revenue comes from problem gamblers. The isolation of EGM gambling from food, beverages and retail liquor sales has been a consistent approach in nearly all independent studies.

### **Modelling the Economic Impact of EGMs in Bendigo**

To assess the impact of EGMs in Bendigo using input-output modelling the technique of “hypothetical extraction” was adopted. This involved the shutting down of the sector in question and redistributing spending to alternative sectors. The effects of a close down of EGM gambling activity in Bendigo and a switch in expenditure towards spending in retail trade is set out in Table 3. Such a scenario is predicted to generate additional spending of \$30.207 million and an additional 303 jobs assuming that no spending by gaming machine operators or the State government returns to Bendigo. When this assumption was relaxed, the net regional effect is a net gain of \$26.057million and 279 jobs. These figures can also be described as the net cost of having gaming machines in Bendigo which costs the region \$26.057 million and 279 jobs assuming that gaming expenditure came from the retail sector. This figure excludes the social costs of gambling.

	Initial Effect	Output \$m	Employment Jobs
Extract EGM Gambling	-43.48	-58.58	-312
Add Retail Trade	+43.48	+88.787	+615
<b>Net Effect</b>	<b>0</b>	<b>+30.207</b>	<b>+303</b>
Subtract spending coming back to the region through EGM gambling*	-2.0*	-4.15	-24
<b>Net Effect (Regional Cost of EGM Gambling)</b>	<b>-2</b>	<b>+ \$26.057</b>	<b>+279</b>

**Table 3: Close Down all EGMs in Bendigo and substitute with Retail spending**

\* Spending by gaming machine operators and State government directly related to gaming revenue

If all the \$43.48 million currently spent on EGM gambling in Bendigo was transferred to spending on accommodation, cafes and restaurants, then similar results would be obtained. The poor relative performance of the EGM gambling industry means that any substitution of spending away from gambling will have a strong and positive effect on the Bendigo economy. The results of modelling these effects using REMPLAN are set out in Table 4.

	Initial Effect	Output	Employment Jobs
Extract EGM Gambling	-43.48	-58.58	-312
Add Accom,Cafes&Rest	43.48	87.702	510
<b>Net Effect</b>	<b>0</b>	<b>+29.122</b>	<b>+198</b>
Add back additional spending coming back to the region*	2.0	<b>-4.15</b>	<b>24</b>
<b>Net Effect (Regional Cost of EGM Gambling)</b>	<b>-2</b>	<b>+24.972</b>	<b>+174</b>

**Table 4: Close down all EGMs and substitute with Accommodation, Cafes and Restaurant spending**

\* \$1 million allocated to Property & Business Services and \$1 to Health & Community Services

Once again there is a net benefit which this time amounts to \$24.972 million and 174 jobs or conversely the net regional cost of having EGMs amounts to \$24.972 million and 174 jobs if it is assumed that all spending came from the accommodation, cafes and restaurant sector and before regional social costs are added.

A survey of Victorian gamblers using EGMs (VCGR 2000) asked gamblers how gambling money would otherwise have been spent. Table 5 sets out the result of modelling based on the survey results including claimed savings of 6%. While the data from such a survey is helpful, there would be an expected gap between reality and how gamblers say they would otherwise have spent and saved gambling money. Such a scenario is however as realistic as can be obtained. The higher the savings ratio used in modelling, the lower the effect on previous consumption and consequently, output and jobs.

***The net benefit of closing down all 547 EGMs and allocating spending and saving according to the VCGR survey would be a net gain to the Bendigo economy of \$20.542 million and an additional 207 jobs.*** These results are set out in Table 5. Such results should not be surprising given previous discussion on the weak performance of the EGM industry in terms of low levels of labour intensity and the small percentage of total output which is spent on inputs. Add to this the high levels of expenditure leaking out of the region in the form of payments to the machine operators and State taxes and the results are predictable, even after allowing for some of these leakages coming back into the economy.

	Initial Effect	Output \$m	Employment Jobs
Extract EGM Gambling	-43.48	-58.58	-312
Add Mixed Spending	+40.435	+83.272	+543
<b>Net Effect</b>	<b>-3.045</b>	<b>+24.692</b>	<b>+231</b>
Subtract spending coming back to the region through EGM gambling*	-2.0*	- 4.15	-24
<b>Net Effect (Regional Cost of EGM Gambling)</b>	<b>-5.045</b>	<b>+ \$20.542</b>	<b>+207</b>

**Table 5: Close Down all EGM Machines in Bendigo and substitute with mixed spending and savings based on gambler survey (VCGR 2000)**

Such figures are supported by observations of job intensity and employment growth in Victoria since the introduction of EGM gambling (VGR 2005, p14)

*The job intensity associated with gambling expenditure is quite low and job growth has failed to grow with the substantial growth in gaming expenditure in Victoria in the last ten years.*

***What the present study is suggesting is that rather than offering low job growth, the switch in spending away from traditional areas of spending towards EGM gambling has actually cost jobs and output at State, regional and metropolitan levels of the economy. Any job growth in Victoria will be linked to other factors.***

## **The Net Regional Cost of 100 Additional EGMs in Bendigo**

Bendigo presently has one EGM for every 179 adults in the region. This figure for the whole of Victoria amounts to one machine for every 146 adults. There is a consequent risk that more EGMs could be placed in Bendigo if it suited the gaming machine operators. The total number of EGMs has been capped for the State so the machine operators have two options in order to increase revenue:

- (i) to increase the earning capacity of the machines, and/or
- (ii) to relocate machines by removing them from venues with lower returns and reallocating them to venues with higher earnings.

The latter scenario is possible some time in the future given the fact that revenue per machine in Bendigo is higher than that for Country Victoria as previously shown in Table 1. Taking an assumed increase of 100 machines in Bendigo it is not clear just what revenue the additional machines would earn. Average revenue in Bendigo of \$80,000 per machine does not mean that the last 100 machines employed will earn that much, given an expected pattern of diminishing returns. While the first machines introduced into an area would earn well in excess of the \$80,000 average, there would be a time when earnings for each additional machine would diminish to below the average. While such information will be in the hands of gaming machine operators, it is not publicly available. Not knowing the expected earnings of additional machines makes it very difficult for local communities to mount a tight argument against such a placement and question any industry provided data.

It will be in the interests of the operators to distribute EGMs to that optimal point where the earnings of the last EGM placed in any area will be the same. At that point no additional earnings could be generated as a result of reallocating machines. For the exercise, average revenue of \$60,000 per EGM will be assumed for the additional 100 machines giving assumed annual total revenue of \$6,000,000 to be modeled. It is argued that operators will only bring machines into Bendigo if returns justify such a move. For this exercise it will be initially assumed that most of this additional expenditure will be transferred from retail trade.

	Initial Effect \$m	Output \$m	Employment Jobs
less Retail Trade	-6	-12.25	-85
Add EGM Gambling	+6	+8.084	+43
<b>Net Effect</b>	<b>0</b>	<b>-4.166</b>	<b>-42</b>
Add back additional spending coming back to the region*	<b>0.280*</b>	+0.581	+3.0
<b>Net Effect (Regional Cost of 100 EGMs)</b>		<b>-3.585</b>	<b>-39</b>

**Table 6: Addition of 100 more EGMs in Bendigo with spending taken from retail trade**

\* \$0.14 million allocated to Property & Business Services and \$0.14 to Health & Community Services

As would be expected, any switch in consumer spending away from an area such as retail trade to expenditure on an additional 100 EGMs would lead to a loss of output of \$3.586 million and 39 jobs in Bendigo after allowing additional government and industry expenditure in the region of \$280,000. This information is set out in Table 6. As \$6 million is taken away from retail spending there is a loss of \$12.25 million and 85 jobs. With \$6 million then spent on EGM gambling, only \$8.084 million in output will be generated, which is 4.166 million less than that generated by retail trade. Similarly, \$6 million spent on retail trade generated 85 jobs compared with only 42 jobs under EGM gambling. These losses are slightly reduced to \$3.585 million and 39 jobs after adding in an allowance for additional government and industry expenditure. All this is predicated on assumed earnings of \$60,000 for each of the new machines.

If we use the claimed alternative spending by gamblers (VCGR 2000), including 6% of savings, then the impact of 100 more machines would be reduced but still of significance. These results are set out in Table 7 where the cost of 100 additional EGMs in Bendigo would amount to \$2.826 in output and 29 jobs.

Later analysis shows that social costs amount to 86.22% of total EGM expenditure. An increase of 100 EGMs and expenditure of \$6 million would be expected to lead to social costs of \$5.173 million and \$2.826 million lost in the switch in consumption. The total cost to the Bendigo region would be \$7.999 million.

	Initial Effect \$m	Output \$m	Employment Jobs
less Mixed Spending	-5.580	-11.491	-75
Add EGM Gambling	+6	+ 8.084	+43
<b>Net Effect</b>	<b>+0.420</b>	<b>-3.407</b>	<b>-32</b>
Add back additional spending coming back to the region*	<b>+0.280*</b>	+0.581	+3.0
<b>Net Effect (Regional Cost of 100 EGMs)</b>	<b>+0.700</b>	<b>-2.826</b>	<b>-29</b>

**Table 7: Scenario 3 - Addition of 100 more EGMs in Bendigo with gambling expenditure substituting for mixed expenditure based on Victorian gambling survey (VCGR 2000)**

\* \$0.14 million allocated to Property & Business Services and \$0.14 to Health & Community Services

*Summing up, the introduction of another 100 EGMs into Bendigo could be expected to cost the region \$7.999 million in output and a further 29 jobs lost if lost spending is allocated according to the VCGR survey.*

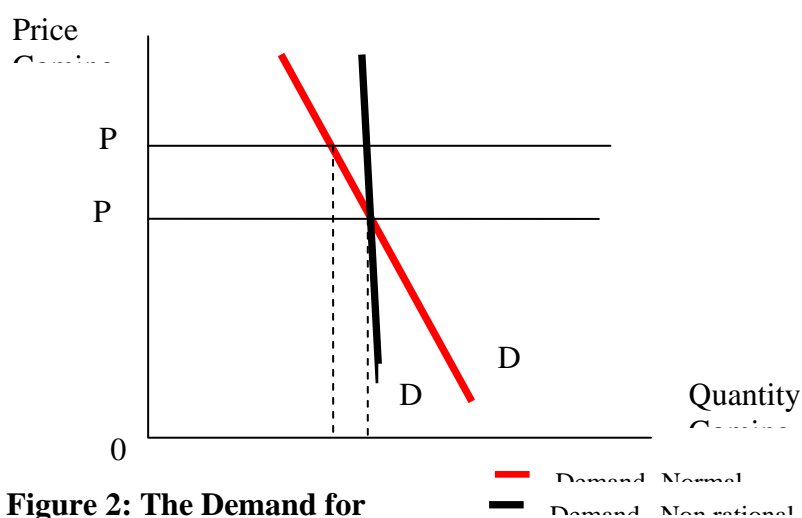


## **Assessing the Social Costs of EGM Gambling in Bendigo**

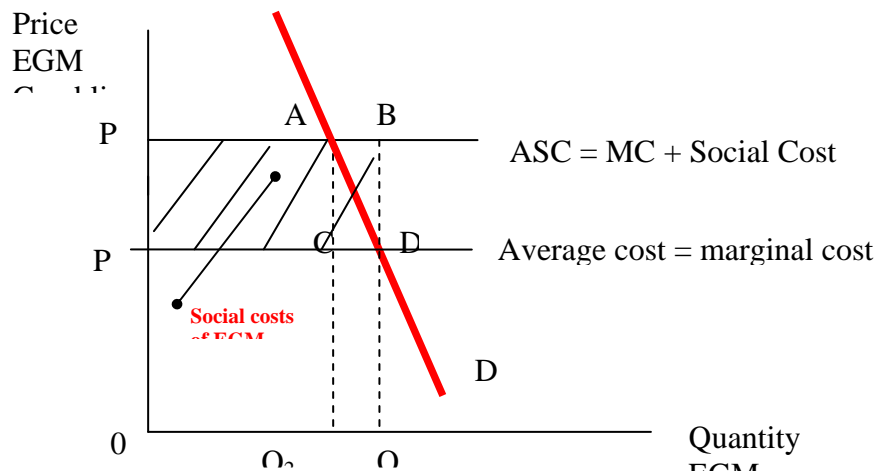
It is often argued that EGMs give satisfaction or utility to those playing them, provide sporting and community facilities and provide a good source of taxation where consumers are exercising their sovereignty in choosing to gamble. There are some serious questions that have to be asked before judgment can be made on such claims. It will be argued that venue and machine operators target areas representing lower socio-economic groups, that not all behaviour by consumers of gaming services are rational and that a proportion of players are motivated by addictive behaviour rather than making rational choice. Adding to the case against EGMs is the fact that between 33% and at least 50% of total gaming revenue is believed to come from those exhibiting addictive behaviour making this a unique and very disturbing industry sector. The social costs of those falling foul of addictive behaviour range from suicide, family and relationship breakdown, theft and embezzlement, depression, poor physical and mental health, dysfunctional behaviour and bankruptcy.

One of the fundamental assumptions underlying competitive market theory is that of “rational behaviour”. That is to say that a consumer will allocate scarce resources to buy goods and services that provide the optimum level of satisfaction after taking the price of products into account. *Assumptions about rational economic behaviour fall over when addictive behaviour is evident, whether it be engaged with illegal drugs, pornography or gambling. There is a very serious social and economic problem when somewhere between 33% and 50% of total revenue is said to come from players exhibiting addictive and non-rational behaviour.*

## Measuring the social cost of EGMs



The ability to extract high levels of profit and tax from consumers in the EGM gambling market suggests that consumers are not very responsive to changes in price. That is to say that demand is inelastic. The demand curve D1 represents what might be called normal demand where players are capable of making something like rational decisions. An increase in price from price level P1 to P2 will result in a modest reduction in the quantity of gambling consumed. The demand curve D2 represents addictive gamblers who show almost no response to changes in price with a very inelastic demand curve, the dream of those exercising monopoly power and those collecting taxation. For the sake of discussion, D1 will be used in a discussion of social costs even though D2 represents between 33% and 50% of the revenue extracted by EGMs from problem gamblers.



**Figure 3: The Social Cost of EGM**

Figure 3 shows the demand curve for EGM gambling  $D_1$  and no intervention. The market will settle at price level  $P_1$ , and quantity  $Q_1$  and will fail to take the social costs of EGM gambling into account. Social costs or damage from EGMs are represented as shaded area  $P_2BDP_1$ . At price level  $P_1$ , the cost to society (Marginal Social Cost) is greater than the cost to the individual and we can conclude that this product is being over-consumed.

***Markets are unable to recognise any social costs to society such as those already mentioned including relationship and family breakdown, theft and social dysfunction.***

Government intervention will be required if the market is to be driven to output level  $Q_2$  through the use of taxes or direct intervention where social costs are factored into market decisions. This will not occur in the case of EGM gambling given the level of addictive behaviour (33-50%). Rational consumer behaviour and a consequent reduction in demand could not be expected. This leaves the option of direct intervention in what is an already artificial and highly regulated market. The industry is already heavily taxed with no sign of a negative response from gamblers. The percentage of revenue obtained from problem gamblers suggests that the size of the social costs represented in the diagram is very large. In Diagram 3, the market is currently operating at  $P_1$  and incurring social costs measured by the area  $P_2BDP_1$  which are borne by the local (Bendigo) community. Market failure demands government intervention of some kind.

## Identifying EGM Gamblers

Just who uses EGMs in the State Victoria? One study in 2003 found that 33% of their sample of 8,479 Victorian adults had participated in EGM gambling. Relevant to this study, they also found that the figure for Bendigo was 45.8% on a much smaller sample of 179 participants. At the Victorian level 7.6% used EGMs between one and three times a week and 0.9% more than 3 times a week. **Groups over-represented as gamblers included those who were Australian born, pensioners (aged and invalid), self-funded retirees, those on income levels between \$10,000 and \$24,999 and those with education levels to year 10 or those with a secondary education** (GRV 2003, pp59-61). This is hardly an appropriate group to be bearing the taxation burden and adding to community assets.

## Problem Gambling – definition and likely social costs

Problem gambling has been described as ‘the situation where gambling in our society gives rise to harm to the individual player and/or his or her family and may extend to the community’ (PC 1999). Problem gambling constitutes the main social costs of EGM usage. The effects on problem gamblers, their family, friends, employers and on the wider community all need to be factored in to any concept of social cost. These have been documented in the VGRP Survey (2005) which found that

*Problem gamblers were more likely than non-gamblers to:*

- *experience problems at work due to gambling.*
- *experience problems finding time to look after their family interest.*
- *change jobs in the last year due to gambling.*
- *file for bankruptcy.*
- *commit crime to obtain money.*
- *experience relationship breakdown* (p12,2004).

There are also possible health impacts (mental and physical health, anxiety, depression, suicide and substance abuse) (PC 1999). It is almost impossible to put such a range of effects into a manageable and quantifiable form let alone convert these into dollar values represented in Diagram 3 as area P<sub>2</sub> B D P<sub>1</sub>. It has been established that the EGM

gambling sector underperforms in terms of relative employment density and the purchase of inputs. A switch from expenditure in areas such as cafes, retail and entertainment towards EGM gambling leaves the State economy worse off in terms of output and employment. This effect is even greater at the regional level due to massive economic leakages in the form of taxes and profits to capital city-based machine operators. *The social costs of EGM gambling can only add to these negative effects and their very existence is a loud call for intervention into this market, even in their unquantifiable form.*

## **The Incidence of Problem Gambling**

What we do know is that less than 1% of respondents reporting regular EGM / Casino activity said that they were addicted or hooked on gambling (VCGR 2000). This survey was based on sampling 1,760 adults and weighted for age, sex and country / metropolitan. Self reporting of problem gambling is expected to be lower than the actual number experiencing harm from gambling. This figure is lower than an earlier study by the Productivity Commission which put the percentage of Australian adults being defined as problem gamblers at 2.1%, with an annual average loss of \$12,000 (1999). Another survey (VCGR 2003, p12) concluded that 15% of regular gamblers could be borderline cases with a moderate risk of having (or possibly developing) a gambling problem. The probability of being a regular gambler was set at (0.062) of the adult population so this suggests that the level of problem gambling is 0.09% of the adult population, based on gamblers' responses where "regular gamblers" were defined as gambling at least once a week (excluding lotteries). A more recent study (GRV 2005) came out with a higher figure where 2.14% of the adult population were considered to be problem gamblers.

A survey of regular gamblers showed that 75.2% reported that gambling was "not at all a problem" (CGR 2003). This figure was considerably lower than that presented by the Productivity Commission in 1999 which was 93.68%. This leaves a much larger group of 24.8% of regular gamblers who consider that they did have a problem with gambling to some extent. As regular gamblers make up 6.2% of the adult population, it implies that 1.5% of gamblers define themselves as having a gambling problem of some degree.

Using a South Oaks Gambling Screen (SOGS) classification, the VCGR (2003, p12) concluded in their survey that adult Victorians, ranged from:

- \* Possible Pathological Gamblers 0.95% (SOGS score 3-4)
- \* Probable Problem Gamblers 0.82% (SOGS score 5-9)
- \* Severe Problem Gamblers 0.30% (SOGS score 10+).

The total percentage amounts to 2.07% who make the ranks of SOGS3+ and 1.12% who rank at SOGS 5+. As already reported, the VGRV study (2005, p 87) came up with a higher estimate of problem gamblers measuring SOGS5+ at 2.14%. It is arguable that a portion of SOGS3-4, the “possible” Pathological Gamblers, should be added to these figures. For the purpose of a comparison of data however, this figure has not been added.

The issue concerning the reliability of self-reporting was taken up by the Productivity Commission. In a 1999 survey of problem gamblers in counseling, 29% reported that they would have answered a survey honestly, 33% said that they would have concealed their problems and 24% said that they would have refused to take part in a survey (Banks,G. 2002.p4). Taking the figure of 57% who either answered dishonestly or avoided the survey then it could be expected that problem gamblers could constitute nearly three times the reported incidence of between 1.6% and 2.14% amounting to between 4.8% and 6.42% of the adult population being classified as problem gamblers and that is at SOGS5+ with no allowance for ‘possible pathological gamblers’.

Looking from the perspective of family, an earlier study for the Victorian Commission for Gambling Research (2000) concluded that 3% of the Victorian adult population considered that there had been gambling difficulties in their family in the preceding six months with a further 6% prior to the last six months (VCGR 2000,p143). Such a response supports the suggestion that regular gamblers are seriously understating the extent of problem gambling. The length of this ‘prior’ period was not stated so it is quite conceivable that between 3% and 9% of the adult population might have incurred gambling difficulties as a result of EGM gambling over the year of the survey. The extent of these difficulties was not clear in the study so not all of this group can be assumed to be problem gamblers.

The figures setting out reported and non-reported behaviour on a SOGS5+ levels and family based assessment all suggest that problem gambling is more widespread than the self-assessment by gamblers suggests. Table 7 sets out the likely prevalence of problem

gamblers in Victoria and, by inference, in Bendigo. As pointed out above, care should be taken with the 'Family Perspective' category.

Estimation Method	Inferred Number of Problem Gamblers		
	% of adult population	Victoria (adults)	Bendigo (adults)
Self reporting (CCGR 2003) SOGS5+	1.12%	44,567	838
Self reporting (VGRV 2005) SOGS5+	2.14%	85,156	1601
Self reporting adjusted for under-reporting	3.36% to 6.42% (Av 4.89%)	194,585	3660
Family Perspective – 'gambling difficulties' (VCGR 2000)	3.0% to 9% (Av 6.0%)	238,755	4,491

**Table 8: Estimated number of problem gamblers, Victoria and Bendigo**

A level of problem gambling over and above the level ascertained by self reporting will be adopted. A conservative figure of 3,500 will be taken as the assumed number of problem gamblers in Bendigo based on the data in Table 8 and the assumption that EGM gambling behaviour in Bendigo matches that found in statewide surveys. Once again there is a strong need for more local research in this area.

## **Estimating the Losses of Problem Gamblers**

The losses by this group of gamblers are difficult to estimate as gamblers are generally known to under-report by as much as 60%. 'At risk' gamblers were said to have outlaid an average of \$240 per week (VCGR 2000, p133). This matches the figure provided by the Productivity Commission which also put forward the figure of 30% of total EGM expenditure being attributable to problem gamblers. Heavy gamblers claimed that they won back 64% of outlay which places their weekly losses at \$153 or \$7,987 per year. This figure can be raised to \$9,736 per gamblers 'at risk' in today's values after adjusting for inflation. This calculation must be viewed with great care due to a number of factors. The shift in definitions of gamblers provides the first difficulty where the terms encountered range from 'at risk' gamblers, 'heavy' gamblers, and 'problem' gamblers. The second difficulty is the fact that all calculations are based on data at State level and declared by gamblers, a group which has not previously provided accurate data.

*If the losses of \$7,987 are attributed to an estimated 3,500 problem gamblers in Bendigo then the total loss to Bendigo problem gamblers amounts to \$34.076 million which makes up 78% of all EGM annual revenue (\$43.479m), a figure much higher than earlier studies have claimed.* Lack of specific data makes it difficult to confirm or refute this figure and one which is worthy of more research. It was decided to take a conservative approach and halve the estimated losses of problem gamblers in Bendigo to \$17 million or 39% of total net losses. The 78% figure is certainly worthy of further investigation and raises questions about earlier estimates of the proportion of total EGM gambling revenue attributable to problem gamblers.



## **Estimating the Social Costs of EGM Gambling in Bendigo**

### **Loss of job efficiency.**

Problem gamblers in counseling have estimated a 7.9% decline in productivity (PC, 1999, pp7-39). Assuming half of the estimated 3,500 problem gamblers in Bendigo were in the workforce, and that average output per worker was \$234,500 (REMPPLAN), the estimated productivity loss attributable to EGM gambling would amount to \$32.420 million

### **Health**

One study (VGRP (2005, p xiii) found that Victorian GPs are four times more likely to identify patients presenting with health issues associated with problem gambling than their WA counterparts where EGMs are not widespread and are only available at the casino. Depression and anxiety costs were transferred to others around them and to the health system. Given the plausibility of such results and the dearth of information, it was decided to arbitrarily allow for health costs associated with EGM gambling of \$1,000 per annum, per problem gambler. The lack of hard data in this area makes an estimated figure of \$3.5 million unconfirmable but possibly understated.

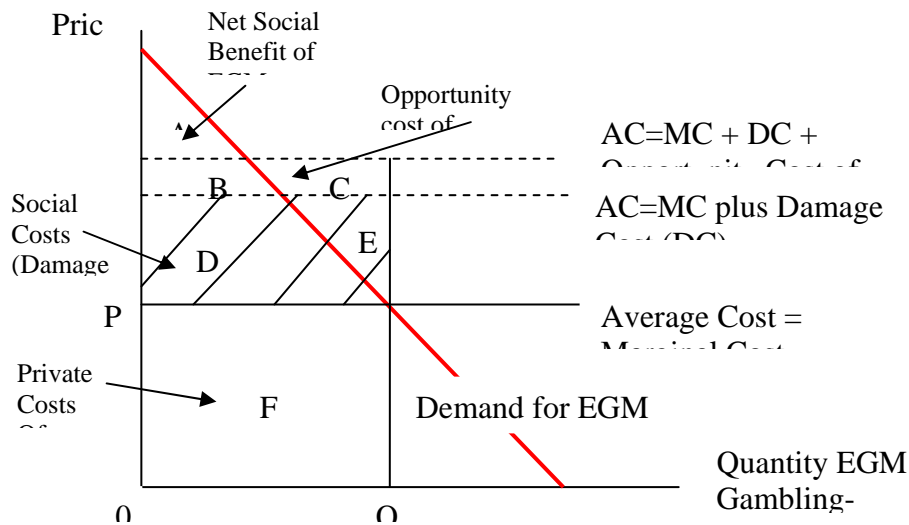
### **Crime**

Problem gamblers involved in counseling self-reported rates of criminal activity of 44%, mainly associated with cheque fraud, embezzlement and theft (VGRP 2005, p12). Based on an assumed 44% of problem gamblers who embezzle or steal one quarter of their losses, an estimated loss of \$1.87 million has been nominated as the cost of crime resulting from problem gambling. The lack of hard data once again leaves such a figure unsubstantiated.

### **Non-quantifiable Costs**

It would be very difficult to allocate costs in dollar values for areas such as relationship problems, reduced levels of family care and family breakdown which were identified in surveys discussed above. It might be that these issues, although presently unquantifiable, might inflict the greatest cost of all.

## The costs and benefits of EGM gambling



**Figure 4: The Benefits and Costs of EGM Gambling**

The costs and benefits of EGM gambling are depicted in Diagram 4. At price  $P_0$ , the quantity of EGM gambling in Bendigo totals \$43.4 million or \$58.58m when flow-on effects are counted (Areas ABDEF). There is still difficulty in a graphical presentation due to the difficulties in determining a price for EGM gambling where, unlike most services, the price per hour is variable and is determined by gambler according to the size of the bet. The private costs of EGMs are equal to area F so the net private benefits A, B and D exceed the private costs. Areas D and E representing the damage done by EGM gambling (\$37.490 million) which have already been identified as social costs and this reduces the benefits to areas A and B with damage area E, still to be deducted from the benefits.

The opportunity cost of switching from other areas of consumption, which was previously measured in terms of output and jobs, is now depicted in areas B and C (\$20.542 million). Net Benefits are now reduced to area A, while the costs of EGM gambling have increased to cover areas B, C, D, E and F. If the social benefit area A is greater than the costs in areas E and C the net social benefits are considered to be positive. Otherwise the result would be a negative net social benefit.

The picture could be complicated further to show the misallocation of resources or welfare loss associated with above average and very high levels of profit and taxation. and the inclusion of family care, relationship problems and family breakdown caused by EGM gambling.

### **EGM Gambling in Bendigo – estimating the costs and benefits**

The social costs of problem gambling in Bendigo have been estimated to be \$37.490 million. This figure excludes those costs identified as unquantifiable in the present study. The Details are set out in Table 9 below.

<b>Estimated Social Costs and Benefits of EGM Gambling</b>	
Worker Productivity loss	\$32.420m
Additional Costs to Health System	\$3.200m
The cost of crime linked to EGMs	\$1.870m
<b>Total Estimated Social Costs of EGM gambling in Bendigo</b>	<b>\$37.490m</b>
<b>Benefits of EGM Gambling (including flow-on effects)</b>	<b>\$62.730m</b>
<b>Net Benefit of EGM Gambling in Bendigo</b>	<b>\$25.240m</b>
<b>Net Benefits of previous patterns of expenditure before EGMs (Including flow-on effects and assuming \$0 social costs)</b>	<b>\$83.272m</b>
<b>Net Loss to region resulting from switch to EGM gambling</b>	<b>\$58.032m</b>

**Table 9: Total Estimated economic and social costs and benefits of EGM gambling in Bendigo Compared to alternative spending**

*Without taking the costs of relationship problems, reduced levels of family care and family breakdown into account, the social costs of EGM gambling in Bendigo amount to \$37,490 million and a net social benefit of \$25.240 million including flow-on effects.*

*Alternative spending patterns, where no similar social costs are assumed, provide a net social benefit of \$83.272 million including flow-on effects.*

***The net loss to the region resulting from a switch to EGM gambling is estimated to be \$58.032 million which includes the opportunity cost of the switch in expenditure and the social costs of EGM gambling.***

The social costs of EGM gambling which remain uncoded can be assumed to outweigh the social costs of alternative spending on retail trade, cafes, restaurants and entertainment. Social costs for these sectors including carbon generation and obesity are assumed to be minimal in comparison.

## Conclusion

EGMs have provided entertainment, sporting and club facilities in Bendigo. These however have come with at great cost. EGM gambling is the least beneficial industry sector in terms of the number of people it employs and in terms of the way it relates to other industry sectors in terms of intermediate purchases. It takes very little to set up and maintain a machine worth no more than \$30,000 (Tabcorp 2007) which is capable of earning a state-wide average total revenue of \$93,000 (Bendigo \$79,000) each year.

*The EGM gambling industry in its present form could be defined as a parasitic industry which sucks up spending from higher performing industry sectors, costing jobs and output to the State economy and even more in the Bendigo economy once high levels of regional leakages are taken into account. The EGM industry has cost Bendigo an estimated \$20.542 million in output and 207 jobs as a consequence of a change in spending behaviour. Measurable social costs have been estimated to be a further \$37.490 million and a total annual loss of \$58.032 million.*

EGM gambling attracts groups over-represented by lower income, lower levels of education and pensioner groups who can least afford to contribute to the provision of club facilities and the high levels of taxation squeezed out of this industry. This form of taxation must be viewed as being highly regressive in nature. The excessively high levels of profits earned by EGMs and distributed between hotels, clubs and machine operators have lead to market inefficiencies and a general loss of welfare with serious implications in terms of income redistribution where those playing the machines are least likely to benefit from improved sporting facilities or higher company dividends.

*Worst of all, somewhere between one third to more than one half of the money spent on EGMs comes from problem gamblers exhibiting addictive behaviour and having little or no control over their spending. There is something drastically wrong when addictive behaviour generates such a high percentage of the total revenue for an industry sector.*

There are very serious social costs emanating from this group including costs to health, inefficiency at work, the breakdown of personal relationships and an increase in crime. The estimated social costs of EGM gambling in Bendigo amount to a further \$37.490 million.

***Analysis suggests that this industry is operating well beyond its allocatively efficient limit and must face serious reductions rather than any possible expansion.*** The capping of machine numbers, the proposed restriction on access to automatic teller machines and the limit on betting of \$5 per spin will offer little relief to problem gamblers, given the speed of EGMs currently in use in Victoria and the volatility of payouts. It will take a much more aggressive approach towards the design of machines (see Appendix 1), the exclusion of problem gamblers through the use of player registration cards (just as we register drivers of motor vehicles) and limiting access to cash for EGMs via ATMs and note acceptors.

To be effective, such measures would be expected to lead to reductions in taxation revenue for the State and the reduction in profits for the gambling industry and will inevitably encounter strong resistance.

## **Appendix 1. Possible Remedies to Excessive EGM Gambling**

The use of taxation policy to stem excessive demand and put a price on social damage is inappropriate given the fact that problem gambling constitutes between 30-50% of total revenue and results from non-rational and addictive behaviour. This leaves direct intervention as the only appropriate strategy. Total prohibition has been suggested with the complication that a very small part of EGM gambling provides some benefit or utility to users free from addictive behaviour. If other measures fail, such a policy could be necessary as a last priority.

Another approach would be to remove problem gamblers from EGM venues through a policy of registering and identifying all gamblers by way of an identity card. Individuals, their families or counselors could have problem gamblers barred EGM gambling or have rigid limits on spending imposed.

Another possible strategy would be to slow down EGMs to a tolerable speed which would be something like lowering levels of alcohol to reduce the damage of binge drinking. In a submission to the Legislative Council Select Committee on Gaming Licensing, Livingstone (2008) pointed out the effects of technology on the EGM industry in Victoria. He noted that with spin limits up to \$10 per spin, machines could be played at intervals of less than three seconds. Even at 30 seconds per spin, a \$10 bet would build up to \$1,200 per hour and at three seconds per spin betting would go up ten fold. He also pointed out that the return of a minimum of 87% of the money played is calculated annually over all machines in the venue.

To overcome the size of the problem in Bendigo through harm minimization, it would be necessary to drastically cut the appetite of these machines to losses of something like \$10 to \$20 per hour and revert to a leisurely speed of play previously associated with mechanical machines taking one coin per spin. One recently proposed reform by the Victorian government is to limit bets to \$5 per spin. Unless the speed of play is also regulated, such a move is unhelpful. A limit of \$5 per spin would still allow a rate of betting of at least \$600 per hour or average hourly losses of \$78 which are averaged out over the whole venue over a whole year, so many would lose much more. *A more realistic strategy would be to make each machine pay back 87% each hour and slow the number of spins per hour. An hourly cap on bets could then be set for example at \$153 with a*

*payback of \$133 and an hourly loss of \$20 which is close to the annual average hourly earnings of machines in Bendigo.*

Those in control and playing the machines for light enjoyment would not be likely to complain at limited losses ranging from \$10 to \$20 per hour. This would be no different to recognizing the speed problem associated with motor vehicles and taking the appropriate action to minimize harm on the roads or placing safety rails on a balcony. The great strength of the proposal is that it minimizes the harm facing addicted gamblers while allowing non-addicted gamblers to continue using EGMs. The other worrying feature of machine design is the addition of note accepting facilities which, like ATMs on the premises, make it very easy to exceed initial betting intentions.

Safe EGMs could be regulated in terms of:

- an hourly cap on bets of \$153 which would be determined by
  - maximum bets per spin e.g. \$1.70
  - number of spins per hour e.g. 90
  - paybacks of 87% per hour for each machine (hourly loss \$20)

Adjustment of any one of the variables (such as the maximum bet per spin) will do little or nothing to curb the social harm of EGMs.



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