SUBMISSION to the GAMBLING INQUIRY by the CITY OF GREATER DANDENONG

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INTRODUCTION

Greater Dandenong is a city of 136,000 people situated in south-east Melbourne. In recent years, the Greater Dandenong Council has witnessed with growing concern, the relatively high, and rising, levels of EGM gambling losses, and their adverse impact upon individuals and families in this city.

This submission concerns two issues: first, the level and effects of the concentration of gambling venues, electronic gambling machines and gambling losses in municipalities and neighbourhoods of relative socio-economic disadvantage, and second, the measurement of gambling-related problems - including the challenges faced by efforts to measure the prevalence of gambling problems, the tendency to underestimate their extent, and some proposals to remedy these difficulties.

I: ELECTRONIC GAMBLING MACHINE GAMBLING AND SOCIAL DISADVANTAGE

Levels of electronic gambling machine (EGM) gambling expenditure, and density of EGMs, tend to be highest among those Victorian municipalities which can least afford such losses. This trend, which appears to have increased in recent years, is illustrated by the relationship between social disadvantage and average proportion of household income lost to EGMs among Victorian communities – a measurement which takes consideration of both gambling expenditure and the ability of communities to sustain such losses.

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Gambling Losses

In 2007/8, $4.85 billion was lost to legal gambling within Victoria, with losses to gambling machines outside the Casino accounting for over half [54%], the Casino for nearly a quarter [23%], and wagering for most of the balance [14%].

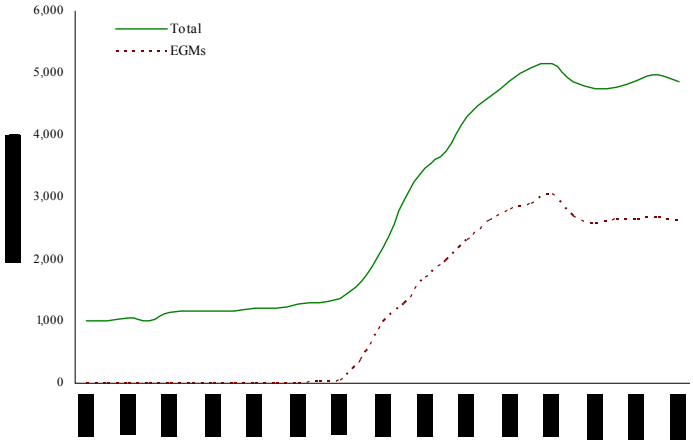
Losses to gambling machines outside the Casino, totaling $2.6 billion, represented the equivalent of $5.02 m. per venue, $97,000 per machine, or $652 for every adult in Victoria.[1] Cumulative losses to EGMs in Victoria, since their introduction in 1992/3, reached $35 billion [2008 dollars] by June 2008 - the equivalent of $8,780 for every adult in the state.

EGM gambling losses increased steadily after their introduction in the State, surging nearly ten-fold, from $258 million in 1992/3 to $2,498 million in 2001/2, before declining by 11% in the succeeding two years, due chiefly to smoking restrictions introduced in September 2002. After that time, EGM gambling losses have risen nominally each year, to 2.6 billion by 2007/8, and a forecast $2.7 billion in 2008/9[2], though in real terms [after taking inflation into account] losses have remained relatively stable.

[1] In 2007/8, annual losses among Victorian municipalities were as high as $1,135 per adult in Greater Dandenong (Victorian Commission for Gambling Regulation, 2008; Australian Bureau of Statistics, 2008B), equivalent to $52 dollars per household per week – the same as the average Victorian household spends on clothing, footwear and household appliances, combined (Australian Bureau of Statistics, 2008A).

[2] Based on adjustment of 2007/8 total EGM losses in proportion to the ratio between losses in 2008/9 to January, and losses in the corresponding months of the previous year.

Total and EGM Gambling Losses, Victoria: 1979 to 2008



Within Greater Dandenong, EGM losses rose from $14 million in 1992/3, to $101 m. in 2001/2, before declining to $98 m. in the following 12 months. Since then, losses have risen to $116 m. in 2007/8 and are expected to reach $122 m. in 2008/9.[3] In real terms though [after taking inflation into account], gambling losses have altered little since 2002/3.

EGM Losses and Disadvantaged Municipalities

While acknowledging that gambling and gambling-related problems occur among all segments of the community, the National Institute of Economic Research concluded, in its study of gambling patterns in Australia, that losses were largely sustained by those who could least afford them: people on lower incomes, in manual employment and the elderly (NIER, 2000). The report found that others with higher status occupations, by contrast, were inclined to spend less on gambling. Further research has found gambling losses tend to be concentrated among less affluent communities (South Australian Centre for Economic Studies, 2005B; McMillen, cited in Senate Standing Committee on Community Affairs, 2008; Anglican Diocese of Melbourne Social Responsibilities Committee, 2008) – a condition considered likely to aggravate existing social disadvantage (Watts, 2008; Hancock, 2008).

This tendency is mirrored by differences in EGM gambling losses among various municipalities in Victoria, where the most disadvantaged communities incur the highest gaming losses. In 2007/8 for instance, gambling losses among EGMs situated in Greater Dandenong - the least affluent locality in metropolitan Melbourne - stood at $1,135 per adult, seven times higher than the corresponding rate of $148 in Boroondara - the most affluent municipality (Victorian Commission for Gambling Regulation, 2008). Thus the residents of the community with the highest gambling losses in Victoria are the least able to bear the financial burden. If it is supposed that approximately a third of adults in Greater Dandenong use gambling machines at least once annually – as is the case for the Victorian population - such average gambling losses would represent an average of approximately $3,405 per adult,

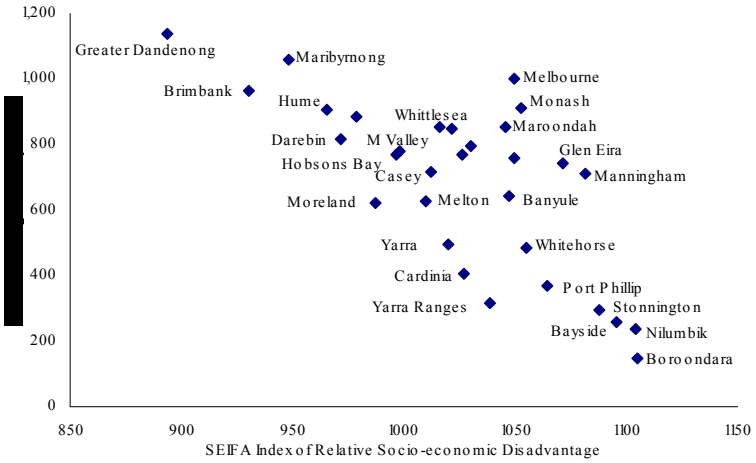
[3] An estimate of the likely EGM losses to venues situated within Greater Dandenong was calculated by multiplying the 2007/8 losses by the ratio between the losses in 2008/9 to January, by the losses in the corresponding months of the previous year.

equivalent to $65 per week or 19% of median weekly individual disposable incomes in Greater Dandenong – potentially a significant burden upon people of modest financial means.

The relationship between social disadvantage and gambling losses is illustrated in the accompanying diagram which, for each metropolitan municipality, matches annual EGM losses per 1,000 adults in 2007/8, to the Socio-economic Indicators for Areas (SEIFA) Index of Relative Socio-economic Disadvantage, based upon the findings of the 2006 Census. The diagram shows the general tendency for higher rates of gambling losses to be incurred by the most disadvantaged communities.

The correlation between the 2006 SEIFA Index of Socio-economic Disadvantage and EGM gambling losses in 2007/8, for metropolitan municipalities, was relatively high, at -0.71 (indicating that, as one increases, the other declines). Since this correlation is higher than that between the 2006 SEIFA Index of Socio-economic Disadvantage and density of gambling machines in 2007/8, of -0.52, it would appear that the higher density of EGMs in more disadvantaged localities is not a sufficient explanation for the higher rates of gambling losses in the same communities – a greater intensity of use of machines must be involved as well.

Gambling Losses by SEIFA Index of Relative Socio-economic Disadvantage: Metropolitan Municipalities, 2007/8



The Persons correlation coefficient, for EGM gambling losses 2007/8 and Index of Relative Socio-economic Disadvantage [SEIFA], 2006, was -0.71. Note that the most disadvantaged communities have the *lowest* SEIFA index.

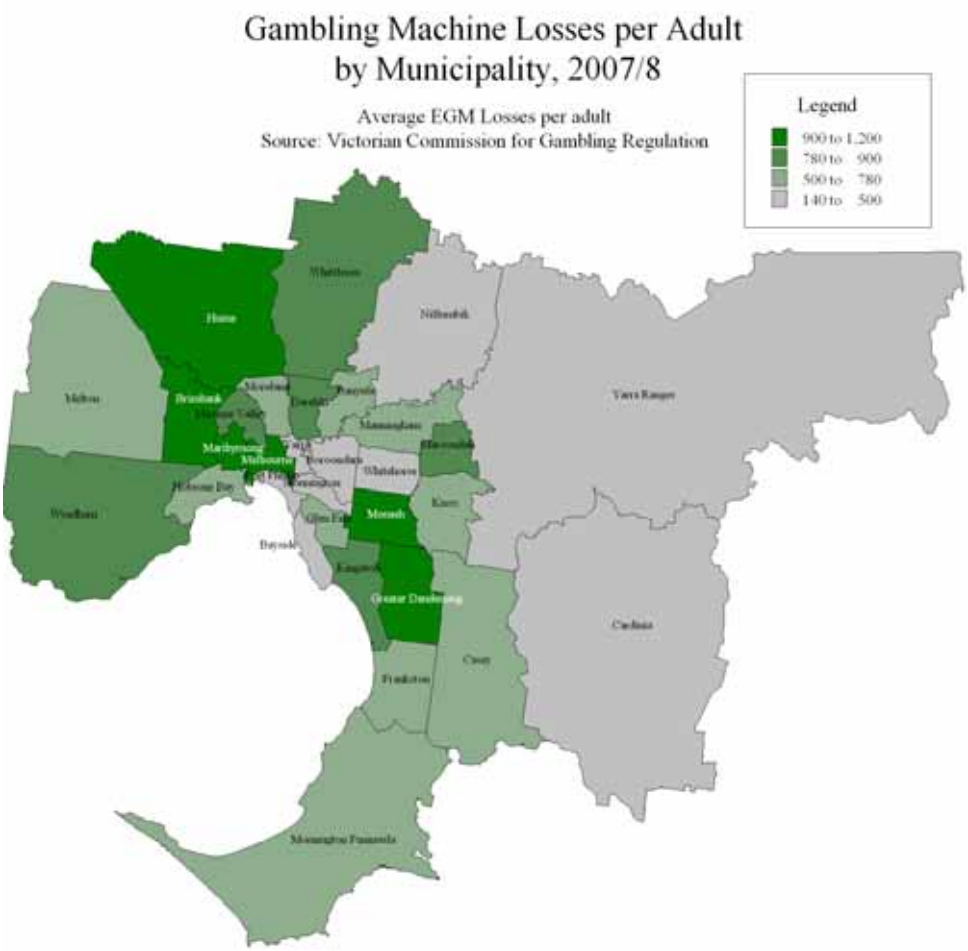
The association between disadvantage and EGM gambling losses appears to have become more acute in the past few years. The correlation between the 2006 SEIFA Index of Socio-economic Disadvantage and EGM gambling losses in 2007/8, of -0.71, is substantially higher than the association between the 2001 SEIFA Indices and EGM losses in the same communities for 2001/2, which stood at -0.5 – reflecting a stronger association between disadvantage and gambling losses in 2007/8.

Notably, since the first round of caps were instituted over a three-year period from February 2001 and the second over one year from October 2006, the caps largely took effect during the period from

2001/2 to 2007/8. The apparent strengthening in the association between social disadvantage and EGM losses during this time suggests that the caps initiative has done little to reduce the effect of EGM gambling upon Victoria's least affluent communities.[4]

* * * *

The rate of losses to gambling machines in each of the metropolitan municipalities in 2007/8 is illustrated in the accompanying map, which shows the average annual losses to EGMs per adult, in each metropolitan municipality. The highest rates of losses are featured among the more disadvantaged localities such as Greater Dandenong, Maribyrnong, Brimbank, Hume and Whittlesea, as well as Monash. Rates are lower among the more affluent inner-metropolitan municipalities and those in the outer east and north-east.



[4] A further indication of the limited effect of the caps announced in October, 2006, is provided by the gambling losses associated with the reduction in EGM numbers in the 19 capped regions. Information about venue level EGM losses, released for the first time by the Victorian Department of Justice, on 6th March 2009, makes it possible to measure the changes in EGM losses in all Victorian capped regions.
Between the years 2006/7 and 2007/8, 548 EGMs were removed from the capped areas, while EGM losses to venues situated in those areas rose by $28 million, or 5%. The effect of this reduction in EGM numbers differed little from either the uncapped areas - which experienced a rise of 66 EGMs and an increase of $41 m. in gambling losses, or from the capped areas in the previous year (2005/6 to 2006/7) - when the number of EGMs rose by 11, and gambling revenue by $32 m.
Therefore, as it would appear, the relatively substantial reduction in EGM numbers in the capped regions, during a period which largely corresponds with the introduction of the caps, was not accompanied by a marked change in gambling losses.

To set the information about gambling losses and their association with socio-economic disadvantage in its due perspective, the 2006 SEIFA Indices of Relative Socio-economic Disadvantage, for the municipalities of metropolitan Melbourne, are presented in the table below. Lower numbers represent the greater degree of disadvantage.

SEIFA Indexes of Relative Socio-economic Disadvantage:
Municipalities of Metropolitan Melbourne

Municipality	Score	Rank	Municipality	Score	Rank
Banyule	1047	66	Maroondah	1046	65
Bayside	1096	78	Melbourne	1049	68
Boroondara	1104	80	Melton	1010	51
Brimbank	930	3	Monash	1053	70
Cardinia	1027	62	Moonee Valley	1016	55
Casey	1012	53	Moreland	987	34
Darebin	972	24	Mornington Peninsula	1026	61
Frankston	997	43	Nillumbik	1104	79
Glen Eira	1071	75	Port Phillip	1065	73
Greater Dandenong	894	1	Stonnington	1088	77
Hobsons Bay	998	44	Whitehorse	1055	72
Hume	965	16	Whittlesea	978	27
Kingston	1030	63	Wyndham	1022	58
Knox	1050	69	Yarra	1019	57
Manningham	1081	76	Yarra Ranges	1039	64
Maribyrnong	949	7			

* * * *

The link between conditions of social disadvantage and gambling losses is further underlined in the strong association which exists between higher gambling losses and such conditions as elevated unemployment rates, high levels of disadvantage and lower median incomes. The data shown in the table below were calculated on the basis of EGM losses per adult for 2007/8, and a selection of variables based on the nearest available time period to 2007/8.

It may be mentioned that gambling losses also tend to be greater among localities where people felt least safe at night, as well as those communities with the lowest level of satisfaction with community life and least extent of community involvement. The correlations between these social conditions and gambling losses, among metropolitan municipalities, are shown in the table below.

Gambling Losses per adult, 2007/8: Correlations with selected variables

Social Condition	Correlation
EGMs per 1,000 adults 2007/8	0.88
Unemployment Rate [%], 2008	0.75
Disadvantage [SEIFA], 2006	-0.71
Median Weekly Individual Income [$], 2006	-0.70
Citizen Engagement in past 12 Months [%], 2007	-0.69
Perception of Safety Alone in Local Area at Night [%], 2007	-0.68
Percent population NESB, 2006	0.64
Satisfaction with Community Life [%], 2006	-0.63

* High levels of disadvantage are denoted by a low SEIFA index. Therefore the negative correlation shown here reflects a strong association between disadvantage and higher gambling losses.
* Sources: Australian Bureau of Statistics, Census 2006 – Income, Population NESB; Community Indicators Victoria – Citizen Engagement, Satisfaction with Community Life, Perception of Safety; Department of Employment, Workplace Relations and Small Business – Unemployment Rates.

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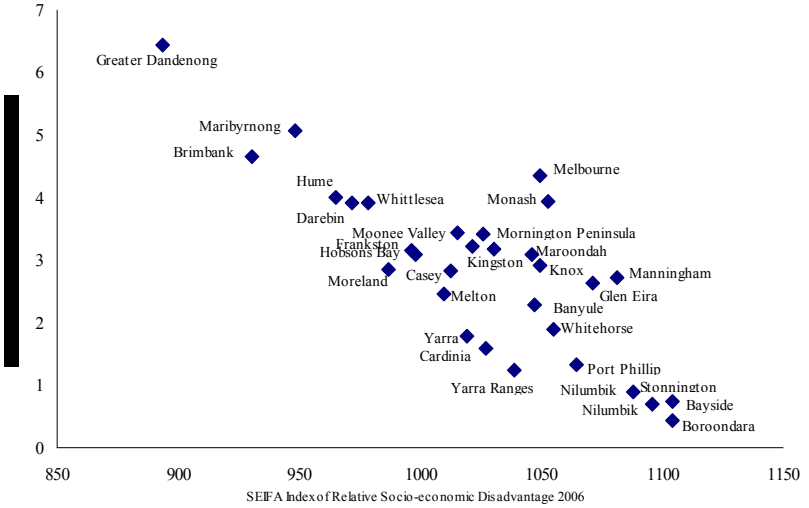
The calculation of EGM losses as a proportion of median household income provides an indication of the relative burden of gambling upon communities by incorporating information about both gambling losses and the capacity of the community to accommodate those losses - though it cannot take precise account of losses to other modes of gambling, or the uneven distribution of gambling losses among households.

Where losses are measured in relation to household income, the disparity between gambling losses among the most, and least, affluent localities is still more marked. For each metropolitan municipality, EGM Gambling losses in 2007/8 have been calculated as average losses per household (based on occupied private dwelling numbers and median household incomes, recorded in the 2006 Census). These losses per household have been correlated with the 2006 SEIFA Index of Relative Socio-economic Disadvantage, for each municipality.

In 2007/8, EGM gambling losses ranged from 0.7% of household income in Nilumbik and Bayside - the 1st and 3rd highest income localities in Victoria respectively – to 6.4% in Greater Dandenong – the least affluent locality in the state, according to the SEIFA Index of Relative Socio-economic Disadvantage (Victorian Commission for Gambling Regulation, 2008, Australian Bureau of Statistics, 2007).

For each metropolitan municipality, the association between the 2006 SEIFA Index of Relative Socio-economic Disadvantage and EGM losses in 2007/8 is illustrated in the diagram, below.

Proportion of Household Income Lost to EGMs
by Index of Relative Socio-economic Disadvantage: Metropolitan Municipalities, 2007/8



The correlation coefficient between the proportion of household income lost to EGMs and SEIFA, was 0.81

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EGM Density and Disadvantaged Municipalities

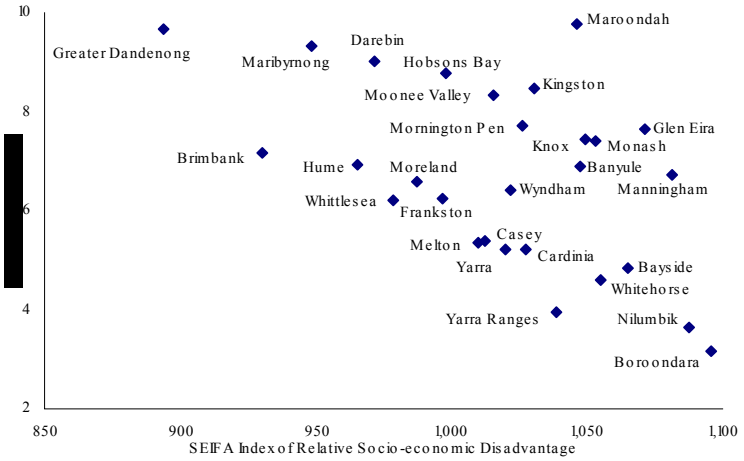
As with EGM losses, the density of EGMs throughout Victoria [measured as the number per 1,000 adult residents] tends to be highest among the least affluent localities. For example, the average EGM density in the *most disadvantaged* four metropolitan localities in 2007/8 [as measured by the 2006 SEIFA Index of Relative Socio-economic Disadvantage] was 8.3 per 1,000 adults, compared with 2.9 among the *least disadvantaged* localities. In the case of Greater Dandenong, the density of EGMS stood at 9.7 per adult in 2008 – the second highest concentration of gambling machines in metropolitan Melbourne (outside the CBD) and substantially higher than the metropolitan average of 6.6.

Rate of EGM Losses and EGM Density: Most and Least disadvantaged Victorian Municipalities

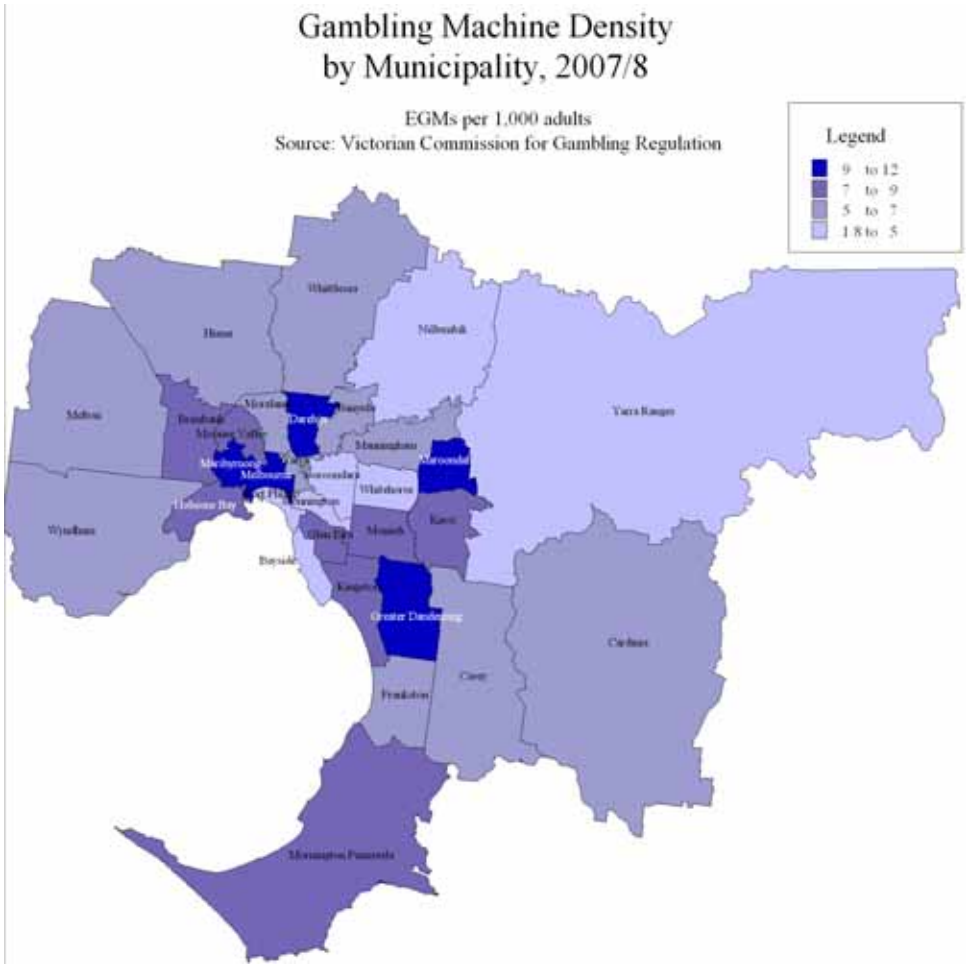
Most disadvantaged localities	EGMs/1,000 adults	Losses/ adult	**Least** disadvantaged localities	EGMs/1,000 adults	Losses/ adult
Greater Dandenong	9.7	1,135	Bayside	3.1	259
Brimbank	7.2	962	Boroondara	1.8	148
Maribyrnong	9.3	1,058	Stonnington	3.7	394
Hume	6.9	907	Nilumbik	3.1	236
Average	**8.3**	**1,016**	**Average**	**2.9**	**259**

The association between EGM density [EGMs per 1,000 adult residents] and the 2006 SEIFA Index of Relative Socio-economic Disadvantage, for each metropolitan municipality, is presented in the diagram below. The correlation between density of EGMs in June 2008 and social disadvantage, measured by the SEIFA index, was -0.52.

EGM Density, by SEIFA Index: metropolitan Municipalities, 2007/8



The density of gambling machines among the metropolitan municipalities, in 2008, is illustrated in the accompanying map.



The resulting pattern largely mirrors that of EGM losses, shown earlier, with the highest numbers of EGMs per 1,000 adults among localities such as Maribyrnong and Greater Dandenong, while lower densities are featured among more affluent inner- and middle-urban localities such as Bayside, Boroondara, Stonnington, Yarra and Whitehorse, as well as the north-eastern municipalities.

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EGM Gambling Machines and Losses and Disadvantaged Neighborhoods

With the release of information about the losses to gambling machines at each venue in Victoria by the Department of Justice, in March 2009, it has become possible to document the relationship between EGM numbers and losses, and the social conditions of the neighborhoods in which the venues are situated. The catchment area of the patrons of gambling venues may vary widely, from the small and localized areas of some clubs and hotels, to extensive, regional catchments for others. However, in light of the fact that a high proportion of people who participate in EGM gambling live in relatively close proximity to the venue (Department of Justice, 2008; KPMG, 2000; McMillen and Marshall, 2004; McMillen and Doman, 2004), and of evidence which suggests that convenient proximity to a venue raises the probability of an individual experiencing gambling-related problems (Mason, 2008; Rush et al, 2008), the relationship between the location of gambling venues, and neighborhoods of relative social and economic disadvantage, appears to be a matter of importance.

To investigate this issue, the location of all hotels and clubs with gambling machines in Victoria as of March, 2009, were mapped, and their locations matched with the 2006 SEIFA Indexes of Relative Socio-economic Disadvantage of the Census Collection Districts (CDs) in which each was situated. This step provided the means to prepare a map depicting both the level of socio-economic disadvantage of each locality in Victoria and the location and level of gambling losses, for each EGM gambling venue in the state. In addition, efforts were made to measure the relationship between EGM gambling losses and the level of disadvantage of the CD within which those machines were situated.

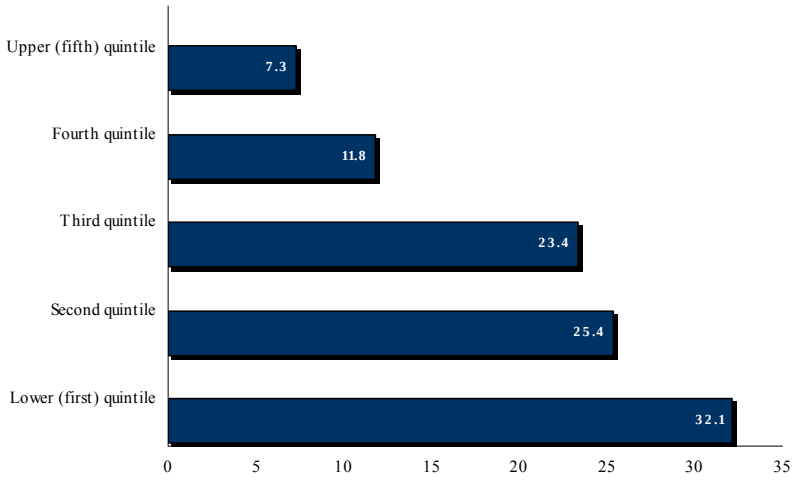
For the present purpose, only losses incurred at those EGMs in the 340 hotels and clubs situated within metropolitan Melbourne are considered, for two reasons: first, nearly three-quarters of machines and two-thirds of venues are located within Melbourne; and second, factors which influence the distribution of machines in regional and rural areas may differ widely from those which operate within metropolitan areas.

The results showed that a markedly higher proportion of EGM venues and gambling losses were associated with the most disadvantaged twenty percent of neighborhoods (CDs) in metropolitan Melbourne, than with the least disadvantaged neighborhoods. Overall, 28% of metropolitan gambling venues were situated within the *most* disadvantaged 20% of neighborhoods and accounted for 32% of EGM gambling losses in metropolitan Melbourne. Conversely, just 11% of venues were located within the *least* disadvantaged 20% of CDs, where they accounted for approximately 7% of EGM gambling losses in metropolitan Melbourne. It may be mentioned that CDs with insufficient population to be assigned an Index of Relative Socio-economic Disadvantage, along with their venues and corresponding gambling losses, have been excluded from these calculations.

The results are set out in the table and chart, below.

Distribution of EGM Venues and Losses by Quintile of SEIFA Index

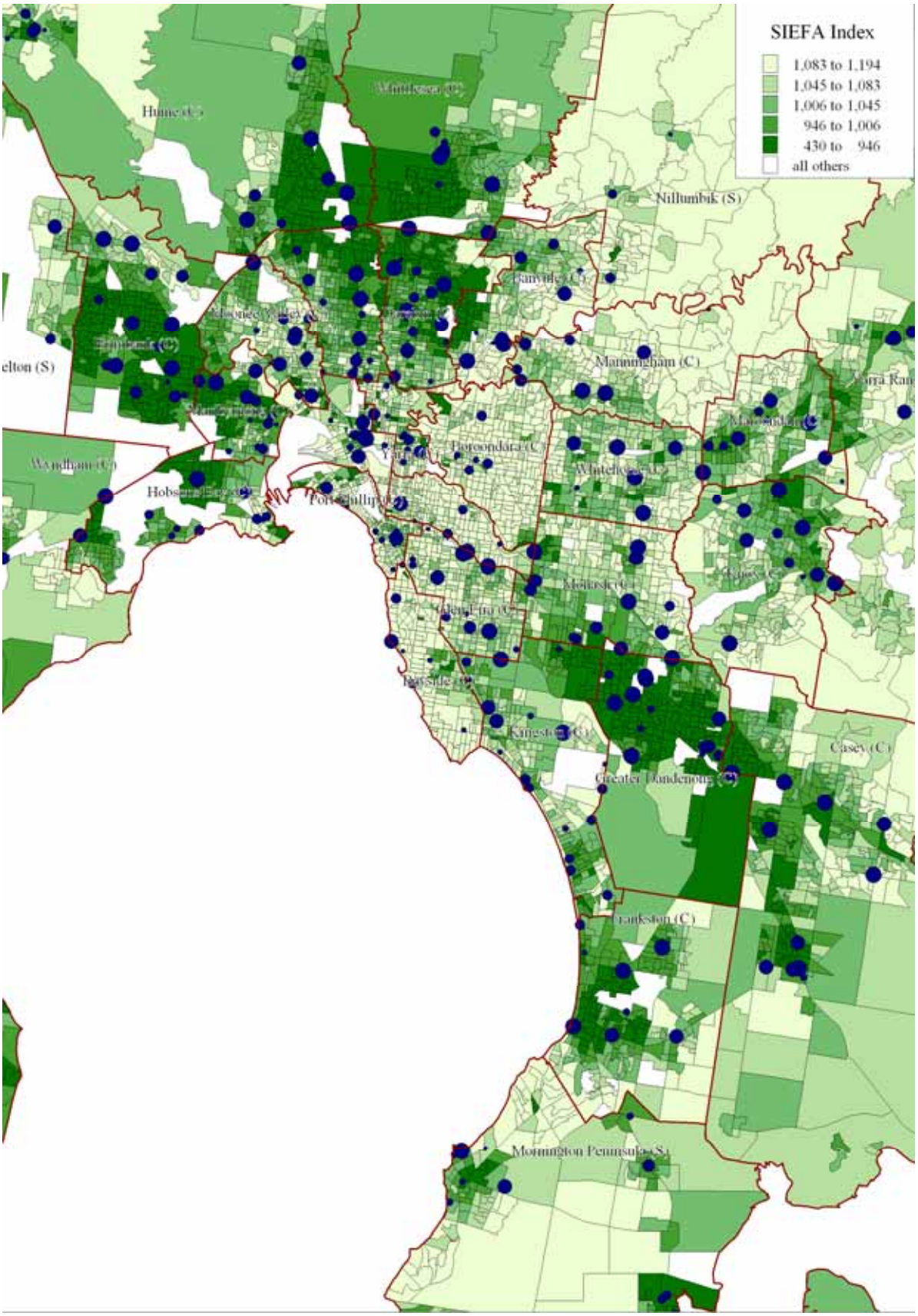
	Per cent of Losses	Per cent of Venues
Lower (first) quintile (*most* disadvantaged CDs)	32.1	27.8
Second quintile	25.4	25.9
Third quintile	23.4	21.5
Fourth quintile	11.8	13.9
Upper (fifth) quintile (*least* disadvantaged CDs)	7.3	10.8



The results reveal a clear rise in the proportion of venues and of EGM losses, with increasing level of socio-economic disadvantage, with the most disadvantaged neighborhoods in metropolitan Melbourne being over four times as likely to have a gambling venue within their borders and accounting for nearly three times the level of gambling losses, as the least disadvantaged neighborhoods.

The relationship between socio-economic disadvantage and the location of gambling venues and levels of EGM gambling losses was also mapped across metropolitan Melbourne, to provide a visual suggestion of the overall relationship between disadvantage and gambling losses, and to supply a view of conditions as they relate to specific municipalities.

The resulting map of metropolitan Melbourne depicts the SEIFA Indices of Socio-economic Disadvantage in ranges – shown in shades of green; the location of gambling venues – presented as blue dots; and gambling losses incurred in each venue – illustrated by differences in size of each dot.



The, the darker areas are those of most socio-economic disadvantage, and the lighter areas the least disadvantaged. The unmistakable impression imparted by this map, and verified by the results

presented in the earlier table and chart, is that gambling venues tend to be concentrated among the less affluent areas, and more sparsely distributed among the more advantaged localities.

Gambling Venues and Losses, and Disadvantage within a Single Municipality

The relationship between the geographic distribution of EGM gambling venues and social disadvantage may also be examined within the scale of a single municipality. For the purpose of illustration, social conditions and the distribution of gambling venues and their losses within Greater Dandenong, are examined.

Sixteen clubs and hotels with gambling machines are situated throughout the Victorian municipality of Greater Dandenong. For each of these gambling venues, the average of the SEIFA indices for the CCD within which it is situated, and the adjacent CDs, has been determined[5] (CDs with insufficient population for a SEIFA index to have been calculated, were excluded). The average of these results was 864 - somewhat lower than the mean of the SEIFA indices of all CDs in Greater Dandenong, of 893 - and therefore representing a higher level of disadvantage. This result may be compared with a distribution of the means of samples of 16 Greater Dandenong CDs randomly drawn from the CDs of Greater Dandenong with a SEIFA index, to determine the likelihood of gambling venues being situated among CDs with such a relatively low SEIFA index by accident. This exercise shows that the probability of the venues being generally situated among neighborhoods of such marked disadvantage by chance, is a relatively small, 4.4%.[6], making the link between socio-economic disadvantage and the location of gambling venues strong enough to indicate that it has not occurred by accident or random chance.

* * * *

The evidence signifies that both EGM densities and gambling losses are highest among those communities which are most disadvantaged with respect to incomes, education levels, occupation and unemployment - and which therefore can least afford such loses. In light of the relationship suggested by other research findings, between proximity of an individual to a gambling venue and propensity to experience gambling-related problems, these results indicate that the distribution of gambling venues, among other factors, may add to the burden which EGM gambling losses impose upon individuals and families in disadvantaged communities.

[5] Two advantages of this approach, which was not adopted in the calculations which determined the distribution of venues and their gambling losses, among CDs of metropolitan Melbourne, are that it provides a more balanced indication of the overall level of social disadvantage of the community in immediate proximity to gambling venues, and second, that it allows venues situated within CDs with little or no population (and for which a SEIFA Index cannot be calculated), but which adjoin populated CDs, to be considered.

[6] The distribution of means of samples of 16 areas (featuring the average of the SEIFA index of a CD and all adjacent CDs) would have a mean equal to the average of all non-zero CDs in Greater Dandenong, equal to 893. The standard deviation of this distribution of sample means would be calculated as $\sigma/\sqrt{n}$, where σ is the standard deviation of all CDs in Greater Dandenong, and n is the size of the sample. The standard deviation of the SEIFA indices for the CDs in Greater Dandenong is 69, and the sample size is 16, making the standard deviation of the distribution of sample means equal to $69/\sqrt{16} = 17.2$. With the mean and standard deviation of the distribution of sample means known, one may determine that the proportion of means which would fall below 864 - the result for the 16 venues - is just 0.044, or 4.4%.)

I: DEFINING & MEASURING GAMBLING PROBLEMS

An understanding of the true extent and nature of gambling-related problems is important for governments and the community, so that they can respond in an informed manner and allocate resources appropriately.

Current methods for measuring the prevalence of gambling problems employ surveys which seek to identify people with severe, or addictive, gambling-related problems. However, the proportion of the population for whom gambling losses persistently exceed their financial means is substantially underestimated by such surveys, due to their narrow focus upon severe gambling-related problems and the inclination of survey respondents to conceal the true extent of any gambling problems. Such surveys therefore tend to produce findings which minimize the prevalence of gambling problems and their effects upon family members and the wider community.

Alternative approaches, including efforts to measure the proportion of people adversely affected by the gambling of others, may provide a more realistic indication of the relative extent of gambling problems, among various communities and over time.

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Losses Relative to Financial Means

While for some gamblers, financial losses may be considerable, for others on low or fixed incomes, the persistent loss of even relatively small amounts of money may lead to financial and other difficulties. As Svettieva and Walker (2008) observe, the effect of gambling depends not only upon the amount of money lost, but upon the gambler's financial means, with substantial losses being comfortably accommodated by people on higher incomes, while even relatively modest losses may cause difficulties for people of more limited financial means. Notably, a recent survey found that gambling-related problems, such as deterioration in family relationships, declining health and stress, were more widely experienced by those whose losses were greatest, relative to their incomes (Lin et al, 2008).

When gambling losses are substantial, relative to the financial means of an individual or household, funds may be diverted from other areas of household expenditure (KPMG, 2000; Justice and International Mission Unit, 2002). The South Australian Centre for Economic Studies (2005B) for example, found that, as the highest gambling losses were incurred by people living in the least affluent areas, most losses were funded not by savings, but by reduced expenditure on essential goods and services. Asked how they would spend money saved if they did not gamble in the course of this research, 23% of a sample of people with gambling-related problems identified groceries and other household items and a similar proportion specified clothing and footwear. An inevitable consequence is a reduced standard of living for the children and other dependents of many regular gamblers.

Effects upon Family Members

It is widely emphasised that the financial difficulties and other problems, which arise when gambling losses are persistently beyond an individual's means, are borne not only by gamblers but by their family, other dependents and the wider community (Senate Standing Committee on Community Affairs, 2008; Anglicare, 2008; Justice and International Mission Unit, 2002; Hancock, 2008). A survey conducted in 2008 found that 12% of respondents had close family members who were, in their perception, 'heavy gamblers'. The effects of gambling on the rest of the family included harm to their physical and mental health, family relationships, housing circumstances, care of children, and general sense of wellbeing (Lin et al, 2008).

Emphasis upon Gambling Problems, rather than Problem Gamblers

Terms widely used in the literature to describe people with gambling-related problems - such as 'pathological', 'compulsive' and 'problem' gamblers – characterise people with gambling problems as having persistent or chronic mental disorders, featuring a preoccupation with gambling, loss of control, and persistence with gambling despite adverse consequences (South Australian Centre for Economic studies, 2005A). Svettieva and Walker (2008) however, observe that such addictive behaviour is neither a necessary nor sufficient condition for gambling problems, as many people who do not exhibit addictive behaviour may still loose more money to gambling than they, and their families, can afford.

Lately though, attention has shifted from the state of the individual, to the effects of gambling upon the family and broader community, with gambling-related problems being widely viewed as a public health issue. Accordingly, recent years have witnessed a growing emphasis upon the difficulties *caused* by gambling – rather than seeking a diagnosis of the individual – and upon harm minimization as an approach to such problems (Svettieva and Walker, 2008; South Australian Centre for Economic studies, 2005A), reflecting a response to "…the adverse health, social and economic consequences of gambling for individuals, families…and society" (Canadian Centre for Substance Abuse, cited in South Australian Centre for Economic studies, 2005A).

With these considerations in mind, commentators have tended to characterize severe gambling-related problems as 'problem gambling' or 'excessive gambling', in preference to 'pathological gambling'. South Australian Centre for Economic studies, 2005A cites a definition of 'excessive gambling' by Blaszczynski, Walker, Agris and Dickerson (1997) as "…a level of gambling expenditure that is considered to be higher than can be reasonably afforded relative to the individual's available disposable income, and which as a result, causes financial strain" (South Australian Centre for Economic studies, 2005A: vi). The consequence, Dickerson et al (1997) add, may include "…harm to the individual player, and/or to this family…" which may reach into the community (cited in South Australian Centre for Economic studies, 2005A).

This definition reflects a shift from the narrow conception of gambling problems as pathological or addictive conditions, to the broader vision of their adverse effects upon individuals and families. Such an approach has several advantages. First, it does not rely upon proving that gambling problems are a medical condition. Second, such a wide view of gambling problems encompasses the larger group of people who experience gambling-related problems and their social and economic context, rather than upon a lesser number who may be experiencing a clinical addiction or specific mental condition. Finally, by focusing upon the effects of gambling problems rather than the individual, this perspective plainly recognizes the destructive implications of gambling-related problems for family, friends and the community.

Measures of the Prevalence of Gambling-related Problems

Over the past few decades, surveys have been conducted to determine how widespread gambling-related problems are in the community, to document differences in prevalence among various segments of the community, and to trace any changes in the extent of gambling problems over time. With few exceptions, such estimates have been reached on the basis of the findings of random surveys of the adult population, which focus upon the identification of people who are deemed to be afflicted by severe and addictive gambling-related problems, rather than upon the wider range of people who experience adverse effects of their own gambling or the gambling of others.

One investigation, commissioned as part of the 2003 Victorian Longitudinal Community Attitudes Survey, incorporated three different questionnaires, all designed to identify gambling-related problems of broadly equivalent severity. The result was three different estimates of the prevalence of gambling problems among Victorian adults: 1.1%, using the South Oaks Gambling Screen (SOGS) – with a further 0.95% deemed 'at risk' gamblers; 0.97%, employing the Canadian Problem Gambling Index - and 0.91% at risk; and 0.74% problem gamblers using the Victorian Gambling Screen – with 0.9% identified as 'borderline' problem gamblers (McMillen and Marshall, 2004).

Limitations of Gambling Prevalence Surveys

While community surveys and other evidence furnish some suggestions about the prevalence and characteristics of problem gamblers, their findings should be interpreted with caution. Major limitations of such surveys include the apparent inaccuracy with which problem gamblers are distinguished from others; inconsistency in measurement due to differences in the questionnaires, criteria for defining problem gambling and survey methods; imprecise measurement arising from the difficulty of reaching conclusions about a small proportion of the population from the results of a sample survey; and the tendency for such surveys to focus upon identifying people with addictive and severe gambling-related problems while overlooking other gambling problems and the effects of gambling upon family members and others.

Inaccurate Responses

Researchers have long noted with concern, that many people with gambling-related problems are inclined to conceal their difficulties, by either not responding to surveys about gambling or giving answers which minimize their problems (Walker, 2008; Volberg, 1993; Eddington, 1987; Schilling et al, 1994). As a result, the proportion of respondents with gambling problems may be under-reported.

In one of the trials of the SOGS, among 384 students, 28 were interviewed and found to have gambling problems. Yet of this number, 13, or 45%, were not detected by the survey (Cullerton, 1989; Lesieur and Blume, 1993). Thus, the true rate of prevalence of gambling-related problems among this sample was nearly twice that recorded by the questionnaire. The most likely reason was that some individuals chose to conceal the extent of their gambling problems in their responses to a survey. When the Productivity Commission asked 409 problem gamblers how they would have answered a phone survey on gambling, prior to seeking treatment, just 29% replied that they would have responded and given candid replies (Productivity Commission, 1999). If these results reflected the actual level of detection of severe gambling difficulties in sample surveys, then the proportion of Australian adults with gambling-related problems would be not 2.1%, as the authors of that report found, but three times higher, at over 6%.

A further reflection of the under-reporting of gambling losses may be seen in the findings of the 2003/4 Household Expenditure Survey, where Victorian respondents reported, on average, EGM losses of 64c per household (Australian Bureau of Statistics, 2008A). This sum is equal to $63 million in total across Victoria - just 2.8% of actual EGM gambling losses, of $2,290 million that year (Victorian Casino and Gaming Authority, 2004) – and even lower than the 9.1% of EGM losses acknowledged by respondents to the previous survey, of 1998/9.[7] Not surprisingly, this source has been characterised as "notoriously unreliable" (South Australian Centre for Economic Studies, 2005B: 197) as a source of gambling expenditure data.

On the other side of the coin are those people whom prevalence surveys may identify as having severe gambling-related problems, when these difficulties may have been overcome and now lie in the past (South Australian Centre for Economic studies, 2005A; Dickerson, 1993; Walker, 1994). For example, in one US study, two versions of a questionnaire were administered: one referring to problems *at any time* in the respondent's life, which produced a finding of 2.7%; and the other inquiring about gambling difficulties *in the past 6 months*, and yielding a result of just 1.2% (Abbot and Volberg, 1991, cited in Walker, 1994; Ben-Tovim et al, 2001). Similarly, an Australian study of 497 adults, featuring a questionnaire which referred to problem gambling *in the past*, resulted in a finding of 1.9%, compared with 2.5% among those who were asked about gambling problems *at any time* in their lives (Dickerson, 1993). Thus survey responses will vary according to how the question in worded.

[7] In 1998/9, respondents to the Australian Household Expenditure Survey recorded that they lost $1.95 per week to EGMs (90). When this sum is multiplied by 52 (weeks of the year) and the 1,755,000 households of Victoria (91), it reaches $178 million per annum – the equivalent of just 9.1% of the actual EGM losses incurred in Victoria that year, of $1,954 million (92).

With some respondents mistakenly identified as problem gamblers, and as many as two-thirds of those with severe gambling-related problems overlooked in sample surveys of the general population, the accuracy of the findings of such prevalence surveys may not be relied upon with confidence.

Inconsistent Survey Methods

The results of prevalence surveys may be further compromised by differences in the questionnaires used, the survey methods, the type of sample selected, and the cut-off point used to identify problem gamblers (Select Committee of the Legislative Council on Gambling Licensing, 2008; Doughney, 2007; Jonsson, 2007; Xenophon, 2008; Livingston, 2008). Such inconsistencies in the conduct and interpretation of surveys make it difficult to compare the findings of surveys conducted at varying times or among different communities. McMillen and Wenzel (2006) note that it would be preferable if governments settled upon a single, consistent method for measuring the prevalence of gambling-related problems.

Imprecise Measurement

A further limitation of prevalence surveys stems from the fact that, in selecting a sample of the population, chance alone may decide whether or not the sample actually contains the same proportion of people with severe gambling-related problems as the overall community which the sample is intended to represent. Typically, 5 to 20 out of every 1,000 people who participate in a community survey indicate that they have severe gambling problems. However, among samples drawn from the same population, such numbers are subject to chance variation - much as the number of heads in a sequence of coin tosses may vary. When the prevalence of the characteristics being investigated is relatively low - as it is for gambling problems – chance exerts a relatively large influence upon the final result. Accordingly, a random survey of 4,000 adults – the number interviewed in one recent Australian study - which found that 1% acknowledged severe gambling-related problems - would merely signify that there is a 95% chance that the actual prevalence of such individuals in the community falls between 0.69% and 1.31%. Moreover, where many of those selected to participate actually decline to do so - as in all such population surveys - the range increases substantially, rendering the final result so imprecise as to be almost valueless.

Narrow Focus

A further criticism of these surveys may be based not upon the *way* in which they measure gambling related problems but on *what* they measure. By focusing upon the individual characteristics of 'pathological' or 'problem' gamblers, such surveys overlook many of those whose gambling losses persistently exceed their financial means, and yet who do not match the profile of individuals with addictive or severe gambling-related behaviour, or whose difficulties are or a more moderate nature. In addition, an emphasis upon the attributes of the gamblers overlooks the effect of gambling upon those adversely affected by the gambling of others.

Such a narrow focus upon severe and addictive patterns of gambling behaviour, coupled with the lack of precision, inaccuracy and inconsistency of such surveys, raises formidable objections to the validity, and therefore value of such surveys, as measures of the prevalence of gambling problems.

An Alternative Approach

Current research employs inconsistent survey methods and definitions of gambling problems, substantially underestimates the proportion of people with gambling problems, and ignores the effects of gambling upon family and the community. As a result, governments and society lack accurate information about the true extent of gambling-related problems, which is required to reach decisions about the priority to be accorded to such problems and the resources to be allocated in responding to this issue. An alternative approach is required to produce an accurate measure of the scope of gambling problems, not only as they affect gamblers themselves but in their impact upon family members and the wider community.

Instead of measuring the proportion of individuals who exhibit 'pathological' or 'compulsive' gambling behaviour, efforts may be made to measure the broader problems caused by gambling by widening the measurement of gambling problems from the relatively few individuals who match the clinical profile of severe 'problem gamblers', to all those who experience significant difficulties due to persistent gambling losses.

Consideration should also be taken for the overall effect of gambling upon communities. Existing measures of the level of EGM gambling losses incurred by various municipalities - as well as within smaller areas, with the release of venue-level expenditure data in Victoria - can be coupled with information about local income levels to produce a measure of the impact of EGM gambling upon average household incomes, thereby providing a valuable indication of the relative financial burden which gambling losses impose upon communities.

Measuring the extent of both moderate and severe gambling-related difficulties offers the prospect of more accurately gauging the prevalence of gambling problems; of more reliably documenting differences in their relative extent across time, between communities and among segments of the community; and of realistically documenting the harm caused by gambling to their families, dependents and society – a task well beyond the reach of current popular gambling survey methods.

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