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ECONOMICS

# *Gaming machine revenue at risk*

*The impact of three proposed  
modifications to gaming  
machines in NSW*

*Prepared for*

*The NSW Gaming Industry Operators Group*

*Centre for International Economics  
Canberra & Sydney*

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## **CANBERRA**

Centre for International Economics  
Ian Potter House, Cnr Marcus Clarke Street & Edinburgh Avenue  
Canberra ACT

GPO Box 2203  
Canberra ACT Australia 2601

Telephone +61 2 6248 6699      Facsimile +61 2 6247 7484

Email      [cie@intecon.com.au](mailto:cie@intecon.com.au)

Website    [www.intecon.com.au](http://www.intecon.com.au)

## **SYDNEY**

Centre for International Economics  
Level 8, 50 Margaret Street  
Sydney NSW

GPO Box 397  
Sydney NSW Australia 1043

Telephone +61 2 9262 6655      Facsimile +61 2 9262 6651

Email      [ciesyd@intecon.com.au](mailto:ciesyd@intecon.com.au)

Website    [www.intecon.com.au](http://www.intecon.com.au)

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## *Executive summary and findings*

THE NEW SOUTH WALES LIQUOR ADMINISTRATION BOARD (LAB) has foreshadowed certain changes to the technical standards for gaming machines in this State. The measures are directed at harm minimisation. In response, the Gaming Industry Operators Group (GIO) has requested and been granted time to commission and present the results of research into several aspects of these proposed measures before the LAB makes a final determination on their introduction.

### **Study objectives**

One aspect of concern is the likely *economic* impacts of these measures which comprise:

- reduction of maximum bets on gaming machines to one dollar, replacing the existing limit of \$10;
- slowing of game speeds; and
- reconfiguration of the note acceptors on machines to accept bank notes up to but not exceeding \$20 compared with the facilities on some machines at present which will accept notes up to \$100.

These measures are distinct from the package of measures already announced by the Government capping machine numbers and limiting venue operating hours.

The GIO commissioned the Centre for International Economics (CIE) to undertake an economic impact study of the measures. At its core, the study seeks to quantify the gaming revenue at risk in licensed club and hotel venues through the introduction of these measures. Having provided estimates of the size of this risk the study goes on to examine the possible implications for the State in terms of government revenues and possible employment impacts.

The study confines itself to these aspects and does not analyse or comment on any impact that the measures may have on problem gambling. These matters are the subject of parallel research undertaken by the University of Sydney's Department of Psychology. This study does however draw on output from trials and surveys administered by the Department of Psychology in the course of that research.

The starting point for the analysis is a summary of the distinctive ways in which clubs and hotels currently impact on the NSW economy and the critical role of gaming machine revenues in that contribution.

## Placing the activity in economic perspective

Collectively the club and hotel industry in NSW, represented by more than 3200 venues, generated some \$3.4 billion in revenues through their gaming machine activities in 1999–2000. For clubs, the contribution varies with size with the largest venues, which are also the largest employers and contributors to tax revenue, deriving more than 70 per cent of their revenue from gaming machines. No separate information on the reliance of hotels on gaming revenue was available. Together the sector employs more than 77 000 in the State.

Two further observations help to interpret the likely impact of the findings of this study on revenue at risk. One is the *direct* contribution to State taxation revenues from gaming machine duties of \$954 million in 2000. This stems from an effective gaming tax rate which, at 24 per cent on average is much higher than the average effective rate of tax on State activity which is nearer 13 per cent when calculated to include flow back from the GST to NSW. (This has implications for any expenditure switching away from gaming machines and into other activity that might result from the proposed measures.) The other is the fact that gaming machine revenue tends to contribute more to club profitability than other activities provided by clubs. This has important implications. For instance, smaller *club* venues appear to be less profitable on average than their larger counterparts so that although their revenue contribution from gaming machines may be smaller their dependence for survival may be greater.

## Data sources and inquiry methods underpinning the study

The study draws on four separate sets of sample data as a basis for constructing estimates of revenue at risk.



### *Using current turnover and revenue data to infer 'revenue at risk'*

The first and principal source, comprising data for 29 venues across the State (22 clubs and 7 hotels) extracts anonymous data on machine turnover and venue machine revenue (player spend) for a large sample of players who participate in loyalty rewards programs in these clubs and hotels.

This data on the rate of turnover (so many dollars per hour) and, related to this, the *revenue* generated for venues, provides the basis for estimating 'revenue at risk' in each sample venue should the one dollar maximum bet be introduced. It does so because it enables estimation of the *proportion* of revenue currently being generated by bets which on average exceed \$1 per play. This proportion varies from venue to venue. Its estimation also depends on the speed with which people play – how long each game takes.

### *Game speed data*

A separate set of sample data which recorded observations on the rate at which people play was used to form an independent estimate of *average* game speed. Using this average in combination with observed turnover data it is possible to piece together an estimate of the proportion of revenue in each sample venue that is likely to be impacted by the maximum bet restriction.

A feel for the likely impact of slower game speeds *in combination* with the maximum bet restriction can be obtained from the turnover data by simply varying the average speed at which play is assumed to be occurring and calculating the change in the apparent revenue at risk.

### *Invited participation in modified machine trials*

Besides further slowing play, the main impact of modified note acceptors on player spend (and venue revenue) will be on the satisfaction of players and any tendency to spend less because of the reduced convenience factor. These impacts (and any *independent* impact of reduced game speed) cannot be deduced from the electronic tracking of current player expenditure on today's machines. Other experimental data is required. This was obtained from exposure of players to machines that incorporated all possible combinations (seven) of the three proposed modifications in seven hotels and four club venues. Modified machines were installed but unmodified machines remained available. After being invited and observed to play the modified machines, players were questioned on their experience. Among

other things players were asked about their likely expenditure responses and behaviour modification should modified machines be the only ones available.

### *Blind trials*

As a further data source CIE drew on the results of a set of 'blind trials' conducted for Sydney University. The seven modified machine variants incorporating a particular game type ('Pirates') were set up in four selected club venues in company with neighbouring unmodified machines (the control machines) incorporating the same game. The expenditure records of the modified and unmodified machines for a one week period were retrieved and compared. This exercise allowed players to reveal their preferences through spending behaviour. Individual machines were not identified explicitly as modified machines.

Preliminary results for similar trials for a sample of hotels which became available after this report was finalised are broadly supportive of the results for clubs and are included at appendix C.

## **Main findings**

### *Revenue at risk*

This study establishes that the proposal to introduce a \$1 maximum bet limit, even if unaccompanied by the other two measures, is likely to put significant revenue at risk in both clubs and hotels. The turnover data from existing player behaviour suggests that, on its own, that measure puts 17 per cent of club machine revenue at risk, on average. The comparable figure for hotels, is 39 per cent.

The risk is generated by the relatively large contribution to revenues in most venues in the sample from 'high intensity play' where (a possibly small number of) players stake more than \$1 per game. Whilst the small number of hotels in the sample invites caution in generalising for that sector, it seems that such high intensity play is even more important in the make-up of hotels' gaming revenue.

For this risk to be mitigated it would be necessary for the players who underpin it to modify their behaviour in a way that would still generate similar revenue from modified machines that had a \$1 limit. This would mean devoting more time to gaming or faster play or both. The second of

the measures – slowing down the speed of the game – would make this compensating behaviour more difficult.

Neither slower game speeds nor modified note acceptors are amenable to analysis based on current turnover data in the same way as the \$1 maximum bet. What *can* be done is an assessment of the sensitivity of the estimate of revenue at risk from the \$1 restriction to changes in *average* game speed. Independent sampling showed 5.5 seconds per game as the average. This sensitivity analysis shows that combining the effects of slower game speed and modified note acceptors (which could also give the effect of slowing high intensity play) is likely to raise the expected revenue at risk to 21 per cent in clubs and 41 per cent for hotels, based on current turnover and revenue patterns.

The response to each measure individually was pursued through the questionnaire approach and the blind trials. The questionnaire approach, which followed invited supervised trialing of modified machines in a limited number of venues, suggested that 10 per cent of revenue was at risk from slower game speeds based on answers to questions about reduced spending as a result of each modification. Eleven per cent was the comparable figure for hotels. Note acceptor modification was interpreted as having the lowest impact – 2 per cent for clubs and 6 per cent for hotels.

Players were also surveyed on their likely response to the maximum bet restriction. Based on their responses it would be concluded that ‘only’ 5 per cent of revenue would be at risk in clubs and 12 per cent in hotels. This relatively low figure (low in comparison to the estimates based on current play) is thought to be significantly downwardly biased because of the type of players who dominated the samples. Respondents were typically low intensity players betting in small denominations, many of whom would be willing to adopt compensating behaviour including spending more time at the venue. Behaviour change of this type would offset to some degree the revenue impact of the measures. But to have a major offsetting effect it would have to be present among high intensity players.

The blind trials endorsed the basic findings by showing that *where players had the choice* between modified and unmodified machines, and where all three modifications were imposed, revenues were 50 per cent lower than on the counterpart machines. The one unanticipated and unexplained result was the *higher* revenue in two venues on a machine incorporating only the note acceptor modification. This result apart, the blind trials results, whilst varying in magnitude of revenue loss from venue to venue, pointed consistently to significant preference for the unmodified machines.

The result of a 50 per cent average reduction is an upwardly biased estimate of true revenue at risk because it is derived from observations where there is choice between modified and unmodified machines. If that choice were no longer available the revenue fall off would be less than this.

Taking the results collectively, it appears that at one pole any set of modifications that incorporated the \$1 maximum bet limitation would reduce venue machine revenues by more than 5 per cent in clubs and by more than 12 per cent in hotels. Given that these lower bound estimates are likely to exclude revenue losses from high intensity players, the actual revenue at risk from this single measure is more likely to be nearer the 17 per cent estimated for clubs and more than 30 per cent for hotels, using current turnover data from a sample of 29 venues. If all three harm minimisation measures are introduced, the risk to revenue is likely to be around 20 per cent in clubs and as much as 40 per cent in hotels (although the latter figure should be treated very cautiously given the small sample of hotels).

### *Implications for the State*

If revenue at risk estimates of this magnitude were translated into actual losses, a worst case scenario involving all three changes could see club and hotel revenue reductions of around \$1 billion and short term job losses nationally of around 20 000, with a heavy concentration in NSW.

By one estimate, the *injection* of \$1 million into the Sport, Recreation and Gambling part of the service sector in Australia could be associated with an additional 20 jobs nationally. *Withdrawal* of revenue in response to the proposed measures will have its principal effects in NSW and will not necessarily be symmetrical in its effects to an equivalent injection. Furthermore, in the long run, replacement jobs are created and filled. But, if the revenue at risk figures estimated in this report were translated into actual expenditure reductions, both the short to medium term employment and tax revenue effects for NSW could be severe.

The risks to employment from a reduced expenditure on modified machines is heightened by:

- the impact of the cost of installing modified machines;
- the relatively high dependency of clubs on gaming as a source of total revenue (64 per cent on average);
- the contribution of gaming revenue to profitability of clubs; and

- the fact that whilst turnover figures suggest that smaller venues have lower proportions of revenue at risk they have been more precariously placed in terms of profitability according to recent evidence. (Comparable figures were not available for hotels.)

Together, these factors may mean that a loss of gaming revenue of, say, 10 per cent or more could be critical to the survival of some smaller venues with marginal profitability. Club closures would mean industry contraction that in dollar terms goes well beyond the loss of revenue at risk.

Taken at face value, the loss of gaming revenue at risk as estimated in this report will drive down State tax revenue significantly. Even if all the estimated revenue at risk were diverted to other spending within the State, the difference between the average effective tax rate for NSW taxes and the higher rates of tax on gaming revenue would mean that more than \$100 million in State revenue could be at risk.

Finally, whilst the venue data collected for this exercise was not from a sufficiently large number of venues to estimate differences in regional versus metropolitan effects with any confidence, the obvious point remains that in some regional centres closure of a single venue will be a prospect given the expected revenue and profit effects of these measures. If this happens to venues in smaller regional centres, the direct and indirect employment consequences, though small in absolute terms, may be felt even in the *longer term* because of the slower (and even negative) regional employment growth, especially in inland centres.



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# 1

## *Introduction*

THE GAMING INDUSTRY OPERATORS GROUP (GIO Group) in December 2000, responded to a number of proposals put forward by the NSW Liquor Administration Board (LAB) in its Provisional Determination on the 17th November, 2000, for altered technical standards to gaming machines. In response to the Provisional Determination, and in subsequent dialogue, the GIO Group has elaborated on its concerns about the unintended impact on the gaming industry of particular measures ostensibly designed as harm minimisation measures.

The proposed measures comprise:

- reduction of maximum bets on gaming machines to one dollar – single bets of up to \$10 can be placed on some machines at present;
- slowing of game speeds; and
- reconfiguration of bill acceptors to accept bank notes up to but not exceeding \$20 compared with the present facility to accept \$100 notes.

The GIO Group resolved to undertake further research to provide an independent assessment of:

- the effectiveness of proposed measures on problem gamblers; and
- the potential economic impact of these measures.

The Centre for International Economics (CIE) was subsequently commissioned by the GIO group to undertake research on the second of these matters – to undertake an economic impact assessment. The objective of this study was to examine the potential impact of the proposed harm minimisation measures on venue revenues. There is, *prima facie*, a risk that the proposed measures could reduce venue revenue. Any such venue revenue effects could in turn lead to further flow on effects to the broader community, primarily through employment and State revenue effects. CIE was asked to quantify any such likely risks and their effects should they materialise. This report documents CIE's methods and findings.

The club and hotel industry and its linkages to the local and State community are outlined in chapter 2. Potential club and hotel revenue impacts resulting from the introduction of proposed machine modifications are quantified in chapters 3 and 4, with broader community impacts on employment and State revenues estimated in chapter 5.

CIE wishes to acknowledge the input of Visionads Pty Ltd which provided the machine data retrieved from venues (which underlies the results of chapter 3) and also assisted with extensive technical advice on the detailed interpretation of gaming machine data.

The Department of Psychology, University of Sydney, administered the CIE-designed questionnaire on player behaviour (see appendix B), and developed the trials of modified machines as part of a parallel study commissioned by the GIO Group. Results from these trials and questionnaires form the basis of chapter 4 in this report.

CIE is a private economic consultancy which values its ability to undertake research in an independent manner. In undertaking this consultancy CIE was pleased to receive assurances from the GIO Group that an independent and impartial assessment of the impacts of the proposed harm minimisation measures was required. This report has been developed with the cooperation of gaming operators and their clients but its findings and views are those independently formulated by the CIE.



# 2

## *Clubs and hotels in NSW: characteristics and contributions*

CLUBS AND HOTELS ACROSS NSW contribute directly and indirectly to the State economy, to State and local governments' revenues, and to local communities. A significant proportion of club and hotel revenues are generated from gaming machine activity. Therefore, any legislative changes which may impact negatively on gaming machine revenues are likely to have significant implications for total venue revenue, which will lead to further flow on effects, particularly in areas of employment, taxation revenue and contributions to the local community. Risks of any negative effects need to be understood in the context of the revenue structures and profitability of these enterprises, the taxation structures within which they operate, the injections they make through spending and employment, and the role of consumer spending patterns on all of this.

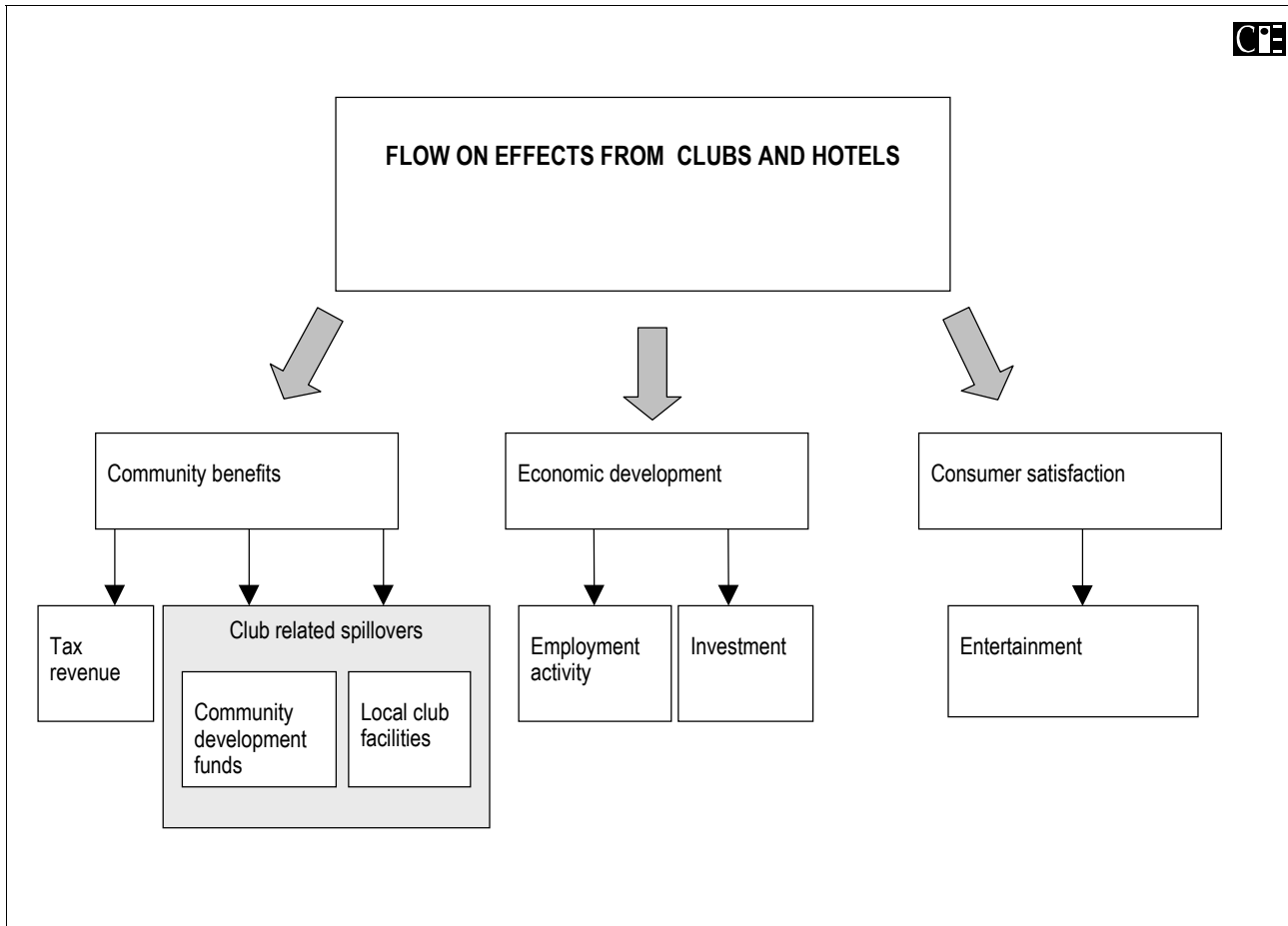
### **Clubs and hotels in NSW**

In 1999–2000 there were 1430 clubs operating in NSW. A number of different types of clubs exist, including RSL/Services, sporting and recreation, leagues and football, golf, bowling, country clubs, business clubs and social clubs. Clubs vary considerably in size, and hence in revenues generated. In 1999 estimated total revenues generated from clubs in NSW was \$3.9 billion, with nearly 65 per cent of this revenue – \$2.5 billion – generated from gaming machines (Allen Consulting Group (ACG) 2000).

In 1999–2000 there were 1838 registered hotels operating in NSW. Gaming machines generated just over \$900 million in hotel revenues in 1999 (Department of Gaming and Racing (DGR) 2000).

Clubs and hotels generate numerous flow on effects throughout NSW. Areas of particular importance include contributions to State revenues, employment and investment effects, community contributions and the provision of entertainment facilities (see chart 2.1 for an illustration in the

## 2.1 Clubs, hotels and the broader community



Source: Centre for Economic Education (2001).

case of clubs). These flow-on effects are, in large part, directly related to the amount of revenue earned by a venue.

### *Source of venue revenues: the relative importance of gaming to clubs*

Clubs in NSW derive revenue from a variety of activities. The main sources include gaming machines, the provision of other gaming and gambling activities (such as KENO and TAB), food and bar services and membership fees. As stated earlier, gaming machines are the most important source of club revenues, accounting for more than 64 per cent of total club revenues (ACG 2000).

However, the contribution of gaming machine revenues to total club revenues is not uniform across clubs. As club size (measured by total revenue) increases so too does the relative importance of gaming machine revenues to total revenues. For example, for clubs which generate less than \$200 000 in total revenue, gaming machine revenues contribute on average

just over 13 per cent of that total. This can be compared with larger clubs, which generate revenue in excess of \$10 million, over 72 per cent of which comes from gaming machine revenues (see table 2.1). In absolute revenue terms, this raises the prospect that proposed gaming machine modifications may pose a significantly greater risk to the revenue streams of relatively larger clubs.

However, smaller clubs have in general the most fragile profit margins (see table 2.1). Fewer than 50 per cent of clubs with revenues of less than \$1 million are more than marginally profitable. This implies that, although gaming machine revenues comprise a much smaller proportion of their total revenue, a small reduction in these clubs' profit margins is likely to impact more dramatically on the viability of smaller clubs than larger sized clubs.

Unfortunately no comparable data is available for the hotel sector.

### *How much revenue do gaming machines generate?*

Revenues generated from gaming machines in clubs and hotels have grown considerably in recent years. Club gaming machine revenues totalled almost \$2.6 billion in 1999 and have grown by 7.6 per cent per annum between 1995 and 1999. Individual club revenues generated from gaming machines vary widely, with the smallest clubs generating revenues of less than \$25 000, compared with larger clubs which generate revenues in excess of \$20 million. Average club gaming machine revenue in NSW is \$1.8 million. This figure reflects the presence of a large number of very small clubs in the sector.

#### 2.1 Revenue by source (as % of total revenue), by club size

<i>Revenue source</i>	<i>\$0–200K</i>	<i>\$200K–1m</i>	<i>\$1–5m</i>	<i>\$5–10m</i>	<i>\$10m plus</i>	<i>All clubs</i>
	%	%	%	%	%	%
Gaming machines	13.1	39.9	62.0	64.7	72.5	64.3
Other gaming	1.5	4.1	2.7	2.2	1.0	1.9
Membership fees	21.6	5.8	1.2	0.8	0.9	1.9
Food	8.1	2.7	6.3	9.6	8.0	7.5
Bar	33.0	37.3	22.7	17.9	10.5	17.5
Facility rental	0.9	0.7	0.6	0.7	0.5	0.6
Professional sport	0.5	0.1	0.1	0.0	0.8	0.4
Non-professional sport	8.6	5.6	1.4	0.4	0.6	1.3
Ancillary business	1.8	0.5	1.2	1.5	2.4	1.8
Abnormal/extraordinary	1.0	0.4	0.1	0.1	1.8	0.9
Other	9.8	3.0	1.7	2.1	1.2	1.9
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: ACG (2000).

### 2.1 Profitability of NSW Clubs, by profitability ranges and club size

Profitability range (EBITA %)	CLUB SIZE (\$)					All clubs
	<\$200K	\$200K–1m	\$1–5m	\$5–10m	\$10m plus	
<-10	17.4	2.7	0.7	0.0	2.4	5.7
-10–(-5.1)	8.0	2.7	3.3	8.9	4.9	4.9
-5–(-0.1)	21.0	13.3	11.8	13.3	4.9	13.5
0–4.9	23.9	31.3	32.2	35.6	17.1	29.0
5–9.9	11.6	25.3	27.0	22.2	19.5	21.4
>10	15.2	22.7	25.0	20.0	48.8	23.9

<sup>a</sup> Columns may not total 100% as not all clubs reported profit figures in the survey. Profitability (EBITA) is the ratio of earnings before interest, tax and amortisation expressed as a percentage of revenue.

Source: ACG Survey.

Total hotels gaming machine revenues were \$898 million in 1999. Hotel gaming machine revenues, although lower than that of clubs, have risen at a faster rate (especially in recent years) than that of clubs. Between 1995 and 1999 hotel gaming machine revenues increased by 41.8 per cent per annum. This is largely in response to new legislation introduced in 1996 that allowed the number of gaming machines in hotels to increase from 10 to 30 and allowed poker machines as well as card machines in hotels.

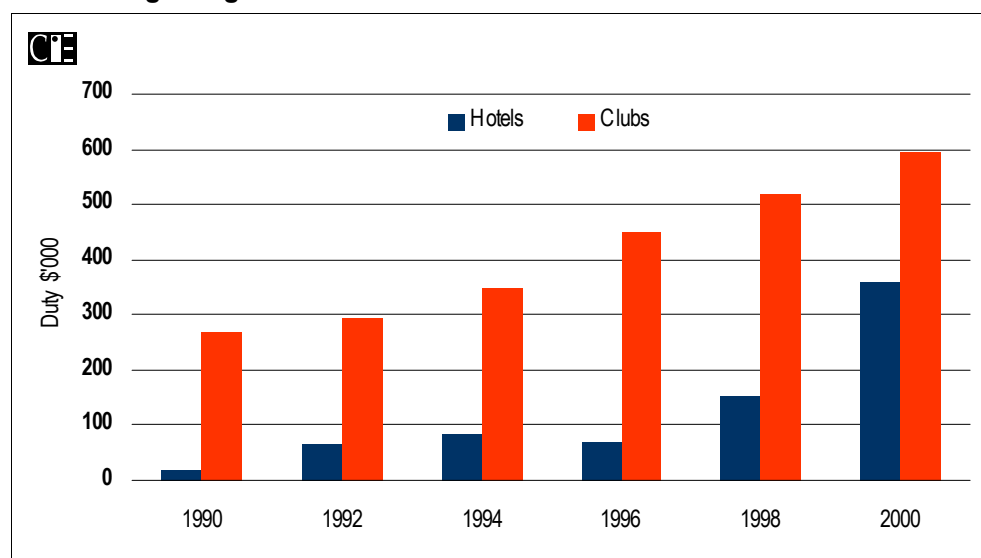
The size of gaming machine revenues will impact directly on the amount of duty paid to the State Government and hence State Government revenues. It will also directly affect the amount of GST revenue generated from gaming machine expenditure collected by the Commonwealth government but returned to the States.

## Taxation

### *Taxation and State government revenues*

Clubs and hotels contribute significantly to Commonwealth, NSW State government, and local government revenues through a number of taxes including gaming machine taxes (including duties and GST), income, payroll, PAYE, fringe benefits tax and council rates (ACG 2000). Of the various taxes paid, gaming machine taxes are by far the most important source of *State* revenues generated from clubs and hotels. In 2000 in NSW, revenue generated from gaming machine duties was in the order of \$595 million for clubs and almost \$359 million for hotels. The strong growth in gaming machine revenues over the past decade has led directly to increased duties paid to the State government (see chart 2.1).

### 2.1 State gaming machine duties — clubs and hotels



Data source: DGR (2000).

As a share of NSW State government revenue, the contribution from gambling while rising slightly, has remained relatively stable at around 10 percent over the last decade. Gaming machine revenues currently account for approximately 6 percent of NSW State government revenues (excluding grants from the Commonwealth).

#### *How are gaming machine revenues taxed?*

Gaming machine revenues are taxed via duties and GST in NSW. Duties are progressive and are based on the level of gaming machine revenues generated (see table 2.1). For all revenue size classes hotels face higher gaming machine revenue duty rates, and hence higher effective tax rates than clubs, where effective tax rates are defined as duties plus GST. Effective tax rates for clubs vary from zero for clubs with revenue in the range of \$0 to \$100 000 up to 26.25 per cent on venues where gaming machine revenues exceed \$1 million. The highest gaming tax rate of 26.25 per cent can be reduced by 1.5 per cent if the equivalent funds have been spent in accordance with the Community Development Support Expenditure guidelines.

These guidelines provide for the channelling of tax rates on gaming revenues from machines located in hotels. Rates vary from 15 per cent where gaming machine revenue is less than \$25 000, up to 40 per cent for revenue over \$1 million. There is no equivalent to the Community Development Support Expenditure offset available to hotels.

## 2.1 Gaming machine tax rates NSW

<i>Gaming revenue</i>	<i>Pre GST duty tax rates</i>	<i>Post GST duty tax rates</i>	<i>GST rates</i>	<i>Current effective tax rates</i>
	%	%	%	%
<b>Clubs</b>				
Less than \$100 000	0.00	0.00	9.09	9.09
\$100 000–\$200 000	1.00	0.00	9.09	9.09
\$200 000–41m	20.00	10.91	9.09	20.00
More than \$1m	26.25 <sup>a</sup>	17.16	9.09	26.25
<b>Hotels</b>				
Up to \$25 000	15.00	5.91	9.09	15.00
\$100 001–\$200 000	25.00	15.91	9.09	25.00
\$200 001–\$1m	35.00	25.91	9.09	35.00
More than \$1m	40.00	30.91	9.09	40.00

<sup>a</sup> Includes 1.5% Community Development Support Expenditure scheme.

Source: NSW Treasury (2001) and ACG (2000).

A GST was introduced on 1 July 2000. It is levied on gambling revenues as one-eleventh of the difference between the total amount wagered and total monetary prizes (NSW Treasury 2001). A GST of 9.09 per cent is applied to all gaming revenue. For clubs with less than \$200 000 in gaming machine revenues, the introduction of GST has led to an increase in the effective tax rate, while for clubs with revenues greater than \$200 000 the effective tax rate has remained unchanged (ACG 2000). For hotels, the effective tax rate has remained unchanged since the introduction of the GST, as gaming machine duties were lowered to offset the introduction of a GST (see table 2.1).

Whilst GST is levied by the Commonwealth, tax revenues are returned to the States in lieu of abolished wholesale sales taxes and other minor taxes and duties removed by the States. The GST is levied specifically on gaming machine revenues. Therefore, any fall in gaming machine revenues, without a compensating rise in some other taxable base within the State, could see a net loss in revenue to the State from this source as well as the 'direct' loss from duties.

What the outcome would be in terms of GST flow back to NSW would depend on the interpretation by the Commonwealth of any New South Wales government decision to reduce its tax capacity in this way.

### *Further contributions to government revenues by clubs and hotels*

NSW clubs and hotels also contribute to State payroll taxes and local government taxes. The ACG Survey reported contributions of \$40.4 million in payroll taxes by clubs in 1999 and \$20.6 million local government rates and taxes.

The Australian Hotels Association (NSW) supplied figures of \$106 million in payroll tax and \$33 million in local government rates as the annual contributions of that sector to State and local government tax revenues.

Based on these figures, clubs and hotels in New South Wales provide an additional \$200 million to State and local government taxation revenue, over and above any taxation specifically attaching to gaming revenues.

## Community benefits from NSW clubs

In 1998 the Community Development and Support Expenditure Scheme was introduced (replacing The Welfare Expenditure Scheme). Through this scheme NSW clubs earning over \$1 million in gaming machine revenue must spend at least 1.5 per cent of this revenue on 'community development and support' if they wish to benefit from a reduction in the top duty rate on gaming machine revenues (Liquor Administration Board (LAB) 2001). Over 400 clubs across NSW qualified to contribute in 1999, with a total contribution of just over \$42 million to community programmes. Contributions provide financial assistance to a wide range of local and charitable non-profit organisations.

NSW clubs also manage and maintain local sporting facilities, with over 80 per cent of clubs providing some sporting facility, including approximately 1700 bowling greens, 89 gymnasiums, 300 golf courses and 260 playing fields (ACG 2000). In 1999 capital expenditure on sporting facilities was approximately \$110 million, with additional costs on maintenance and service of almost \$70 million (ACG 2000).

## Employment activity

Clubs and hotels are important providers of local employment opportunities. Total employment in NSW clubs and hotels is estimated at 77 806 (Personal communication AHA, and ACG 2000). Total employment in NSW clubs was estimated at 36 306 in 1999, of which over 33 per cent were employed on a full time basis, around 11 per cent on a part time basis and 51 per cent on a casual basis (see table 2.1) (ACG 2000). A further 827 trainee and apprenticeship positions were generated by NSW clubs.

### 2.1 Employment by type of employment and club size (revenue), number of employees

<i>Club size</i>	<i>FT</i>	<i>PT</i>	<i>Casual</i>	<i>Trainee</i>	<i>Apprentice</i>	<i>Total</i>
<\$200K	1 322	323	1 635	10	70	3 360
\$200K–1m	2 054	539	2 994	19	211	5 819
\$1–5m	3 429	1 383	5 582	73	158	10 625
\$5–10m	2 144	825	2 994	30	93	6 086
\$10m plus	4 021	1 128	5 403	40	122	10 713
<b>All clubs</b>	<b>12 970</b>	<b>4 198</b>	<b>18 608</b>	<b>172</b>	<b>655</b>	<b>36 603</b>

Source: Estimated from ACG survey (2000).

The AHA believe that the presence of gaming machines in venues has generated approximately 1 in 10 employment opportunities in hotels (AHA 1998).

### *Indirect employment effects*

Gaming machines generate further employment effects in a number of industries, including:

- gaming machine manufacture, maintenance and repair;
- tourism; and
- building and construction industries.

Further employment effects are likely to be generated through linked industries such as tourism. Gambling facilities attract new visitors to the *State* who, in addition to providing a source of spending directly in the gambling industry, create additional spending in tourism related industries such as hotels, restaurants and taxi industries (Ryan and Spreyer 1999).

Further flow on effects from clubs and hotels occur through the building industry. Approximately 87 per cent of clubs undertook some form of capital expenditure – including spending on new buildings, extensions, refurbishment etc – in 1999 (ACG 2000). In 1999 clubs spent an estimated \$237.2 million dollars on new buildings and extensions and \$105 million on refurbishment (ACG 2000). Capital expenditure by the hotel industry is estimated at \$1.5 billion since the introduction of gaming machines (Personal communication, AHA 2001).

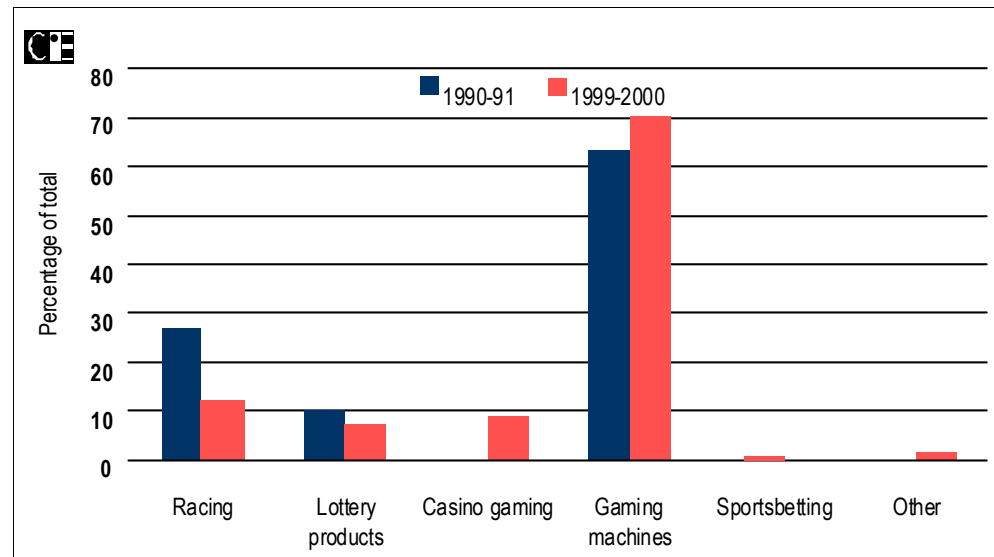
### *The gambling industry in NSW*

In 1999–2000, total gambling expenditure in NSW was \$5.526 billion. Products provided by the gambling industry include racing, lottery products, casino gaming, gaming machines, sportsbetting and other gaming activities such as bingo, Keno, football pools and raffles.



The share of total gambling expenditure attributed to gaming machines has also risen over the past decade, from 63 per cent in 1990–91 to 70 per cent in 1999–2000 (see chart 2.1). Based on consumer expenditure, gaming machines appear to be the most popular form of gambling in NSW.

### 2.1 Expenditure on gambling activities in NSW



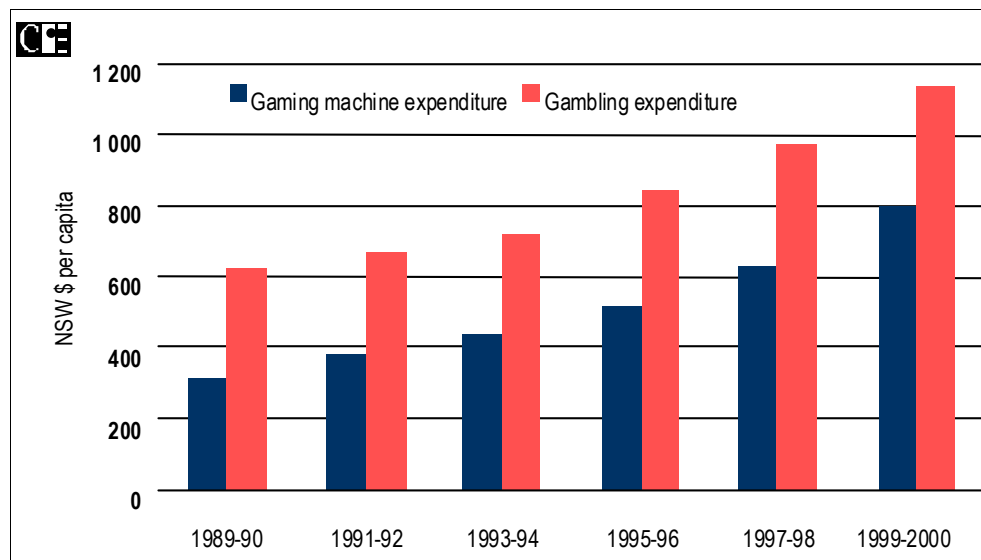
Data source: Australian Institute of Gambling Research (2001).

### *How do consumers spend?*

Increased total expenditure on gambling and gaming machines over the past decade is the combined result of increases in per capita expenditure and population growth. In NSW total per capita gambling expenditure has increased from \$660 in 1990–91 to \$1139 in 1999–2000 according to AIGR figures. Of these amounts, \$362 – or 54 per cent – was spent on gaming machines in 1990–91 compared with \$801 – or 70 per cent – in 1999–2000 (see chart 2.1). Expenditure on non gaming machine gambling activities has remained relatively constant throughout this period, with the growth in gambling expenditure driven by growing expenditure on gaming machines. Therefore, in both absolute and relative terms (relative to total gambling expenditure) per capita expenditure on gaming machines has grown.

According to one estimate, gambling expenditure as a proportion of total household disposable income has also risen from 2.8 per cent in 1990–91 to 4.02 per cent in 1998–99 (Australian Institute for Gambling Research (AIGR) 2001). From the Household Expenditure Survey (HES) New South Wales average weekly household disposable income was estimated at \$916.78 in 1998–99 (Australian Bureau of Statistics (ABS) 1999).

## 2.1 NSW per capita gambling and GM expenditure 1990–2000



Data source: AIGR (2001).

Of this amount, approximately \$91.58 – or 10 per cent of a household’s total budget – is spent on ‘recreational’ activities. Gambling activities, and hence gaming machine expenditures, fall into this category of recreational expenditure. But it is known that people, when asked, underestimate their expenditure on gambling activities.

The HES reports average household expenditure on all gambling activities is \$6.20 per week. This is inconsistent with the considerably higher figures based on known expenditure. On the other hand, the AIGR figures suggest that 4 per cent of household disposable income is spent on gambling activities in NSW. If this figure is applied to the HES income estimates, average weekly household expenditure on gambling is \$36.85, around 40 per cent of an average household recreational budget. It is also calculated that expenditure on gaming machines accounts for 70.4 per cent of all gambling expenditure in NSW (AIGR 2001). On this basis, average household weekly household expenditure on gaming machines is \$25.94, or 28 per cent of an average household recreational budget.

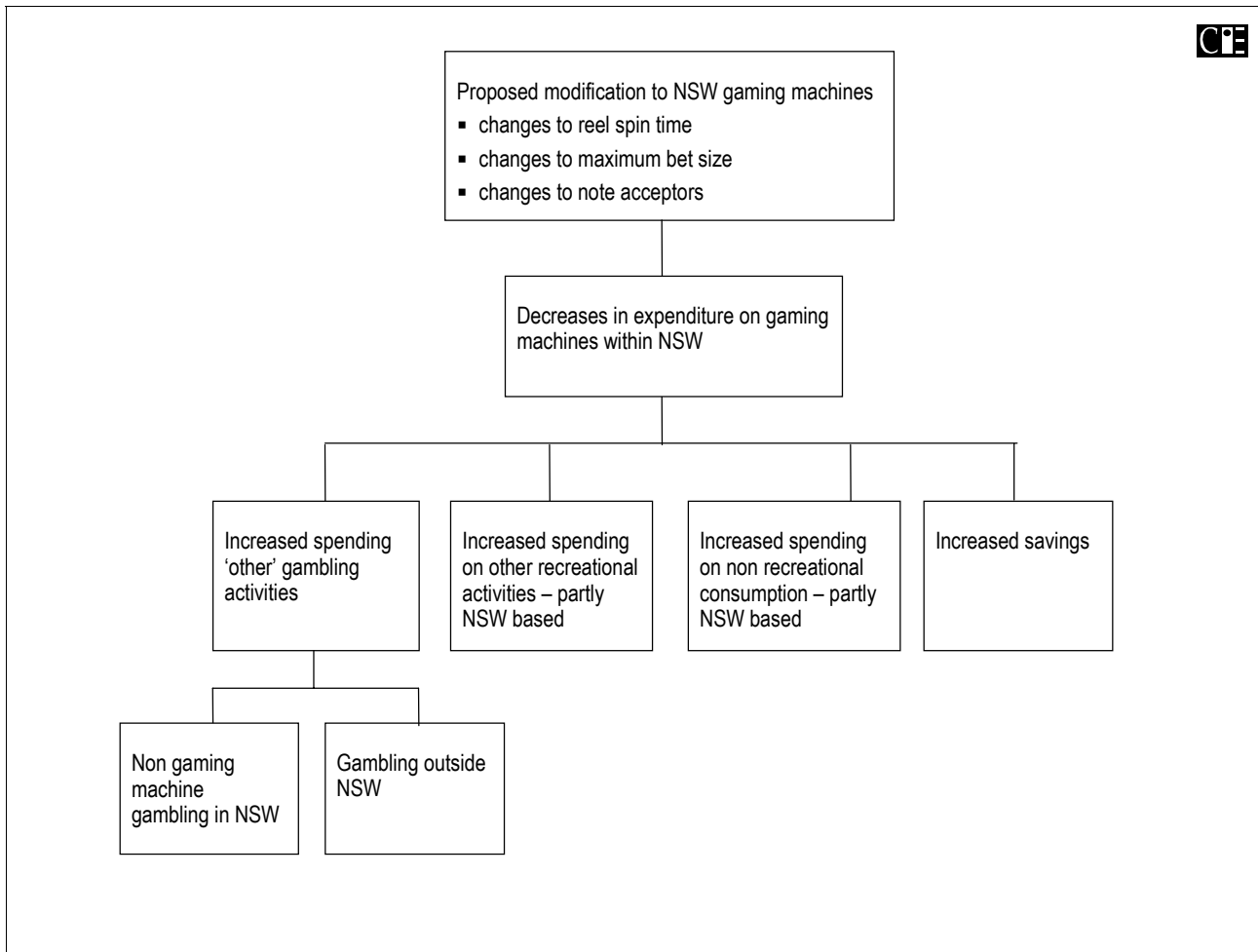
This estimate of gaming machines’ share of the recreational budget is likely to be high. If gambling expenditures are underestimated in HES returns, there is a likelihood that recreational budget shares, of which they are a part, may also be understated. Nevertheless, recreational gaming has become an established and important part of New South Wales citizens’ leisure expenditures. Measures which have the potential to cause significant changes to these expenditures also have the potential to create expenditure leakages out of the New South Wales economy, as analysis below suggests.

*Consumers, possible substitution effects and expenditure switching*

Gaming machine modifications are likely to lead to expenditure switching behaviour by some proportion of consumers. Some consumers will find that they are not deriving the same amount of enjoyment from playing the newly modified gaming machines, and as a result will move some proportion, or even possibly all, of their gaming machine expenditure to other activities. A whole range of ‘substitute’ activities exist, the closest or most likely substitute being other gambling or recreational activities (see chart 2.1).

The overall impact of gaming machine modifications on *venue* revenues will be determined by the extent to which consumers substitute expenditure away from gaming machines to other activities, *and* the extent to which these ‘other activities’ are offered within the venue. Substitution effects will have further implications for *State* government revenue as

**2.1 Potential substitution effects from gaming machine modifications**



Data source: CIE.

different tax rates are applied to different expenditure activities. As such, the overall impact on *State* government revenue will be determined by the extent to which people move their expenditure away from gaming machine activities *and* the type of activities into which people shift this expenditure.

### ***Potential impact of gaming machine modifications***

Gaming machine revenues generate flow on effects to the venues themselves, to State and Commonwealth government revenues and to the broader community itself, by generating employment opportunities and contributing financially to local facilities. The introduction of proposed gaming machine modifications as outlined by the LAB are likely to have a significant impact on club and hotel gaming machine revenues. Estimates of potential venue revenue at risk resulting from the introduction of proposed gaming machine modifications are developed in chapter 3.

# 3

## *Gaming machine modifications and venue revenue at risk*

GAMING MACHINE MODIFICATIONS have the potential to significantly impact on club and hotel gaming machine revenues. The findings of this chapter indicate that, in the absence of significantly modified player behaviour, an estimated 17 per cent of club revenues and 39 per cent of hotel revenues are potentially at risk as a result of the introduction of a \$1 maximum bet limit. These figures rise considerably, to 21 per cent for clubs and 41 per cent for hotels, when the combined venue revenue impact of all 3 gaming machine modifications is estimated. Revenue at risk estimates provide a *starting point* for estimating potential venue revenue losses due to gaming machine modifications and are further qualified in chapter 5.

### **Establishing an estimate of ‘revenue at risk’**

This chapter will provide conservative starting point estimates of the percentage of venue revenue at risk from implementing the following proposed restrictions as outlined by the LAB:

- the introduction of a \$1 maximum bet and slower technical reel spin;
- the introduction of a \$1 maximum bet limit; and
- the combined impact of the introduction of all three proposed gaming machine changes – \$1 maximum bet limit, slower reel spin speed and note acceptors modification.

The following analysis is based on data for 22 club venues and 7 hotel venues. (It was envisaged that data for 25 club venues would be provided, but due to time constraints this was not possible). The sample covers 24 143 club players and 347 hotel players. Sample club venues spanned a diverse group of venues by location and club size. Of the 22 sample club venues, 10 were located in Sydney, 9 were regional clubs and 3 clubs were located near the State borders. Hotel venues were all located in Sydney. Venue identity is strictly confidential. Revenue levels and machine numbers for individual venues have not been disclosed in this report.

## Estimating 'revenue at risk' from maximum bet changes

The amount of revenue at risk from the introduction of a \$1 maximum bet restriction varies from venue to venue, although all will be adversely affected. The likely proportion of revenue that will be lost depends on, among other things:

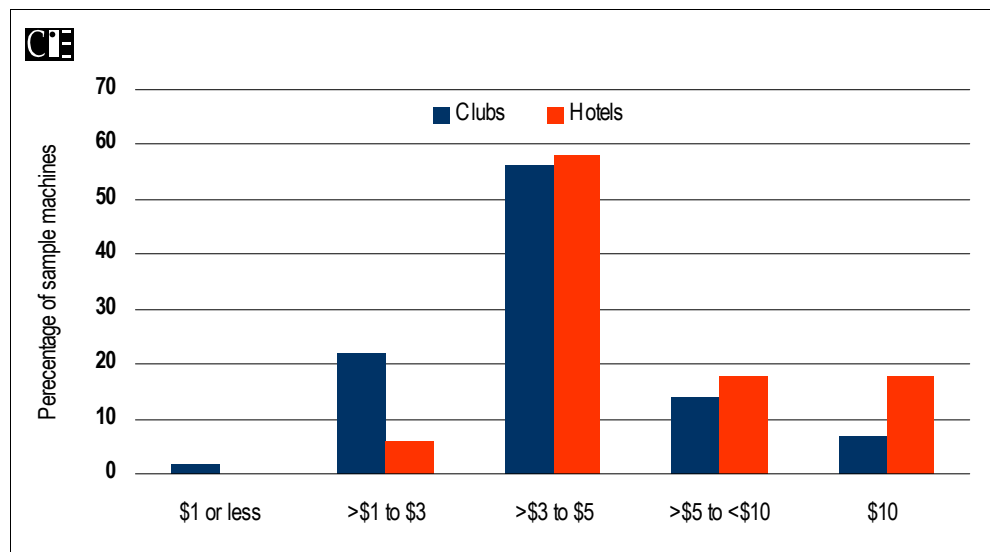
- maximum bet limits currently in place;
- the extent to which these exceed \$1; and
- the proportion of play, where on average, the bet size exceeds \$1 per play.

### Existing \$1 maximum bet limits

Data collected and analysed for sample venues show that of the 3679 gaming machines sampled from 29 venues (22 club and 7 hotel venues), the majority – approximately 54 per cent – had a maximum bet limit of between \$3–\$5 (see chart 3.1). Only 73 machines – or 2 per cent of the total – had a maximum bet limit of \$1 or less. All machines with a \$1 or less maximum bet limit were located in clubs. Therefore, the proposal to limit the maximum bet size to \$1 would reduce maximum bet limits on 98 per cent of club machines and 100 per cent of hotel machines in the sample.

To establish a starting point for further analysis of likely venue revenue effects an estimate of turnover and hence, gaming machine revenue likely to come from bets greater than \$1.

3.1 Current maximum bet size limit for sample machines



Data source: CIE.

### *Bets likely to exceed \$1 per play*

Estimates of gaming machine revenue that comes from bets of greater than \$1 were based on so called 'Bonuslog' data from the Turbo system, which has been introduced in many venues state-wide. This system allows tracking of card-using 'loyalty program' players through electronic polling of machines at predetermined intervals. (The system records turnover and player expenditure. Venue revenue can be taken as a fixed proportion of turnover, given the pay-out ratio of machines).

The player profile templates used in this study assumed that fully tracked player behaviour is, in aggregate, representative of that of all players (including those that do not participate in the loyalty programs that form the basis for these observations). This assumption received support from an independent data set retrieved by Aristocrat Leisure Ltd from Aristocrat machines referred to later in the report.

The analysis assumed an average game speed of 5.5 seconds (or a maximum number of 654 games per hour). It is recognised that while on average the technical minimum reel spin time for machines currently in use is around 2.8 seconds, there are a host of machine features, including free games, second screen features and gamble options, which work to slow the average game speed down substantially below that. To establish an estimated average game speed, Aristocrat Leisure Ltd retrieved data for a sample which consisted of 2472 players and 21 724 observations. Based on this, an average game speed of 5.5 seconds was estimated, almost twice as slow as the technical minimum. Star City has confirmed that an estimated game speed of 5.5 seconds is consistent with their observations.

The methodology used to estimate potential revenue at risk is detailed in appendix A. It is based around analysis of hourly turnover data for individual venues. Put simply, for a given assumed game speed, the higher the proportion of revenue derived from higher rather than lower hourly turnover rates, the more likely are 'average' bets to exceed \$1 per game and the higher is the venue revenue at risk from a \$1 limit.

Two estimates of potential revenue of risk based on observed turnover data on existing unmodified machines have been calculated. The first of these is, for reasons discussed below, biased downwards but is based on data for *all* sample venues. The second, which gives a higher estimate of the potential revenue at risk, uses more detailed data for a subset of these venues to modify estimates for the whole group.

### *Estimating club venue 'revenue at risk' with limited information on high turnover contribution*

Sample revenue data was retrieved from the Turbo system for different turnover rate segments which are as follows: \$1–\$250, \$250–\$500, \$500–\$750, \$750–\$1000 and greater than \$1000 per hour. Time and budget limitations on data retrieval capacity has meant that finer detail on revenue from rates of turnover in excess of \$1000 per hour turnover at greater than \$1500 or \$2000 per hour etc was not available for *all* venues. To generate an estimate of revenue at risk for revenue in the 'greater than \$1000 per hour' turnover segment, where there was no information on the distribution of revenue generated above \$1000, it was simply assumed that the turnover rate was *exactly* \$1000 per hour. This is clearly a very conservative assumption which biases the estimates downwards. Where machine turnover is in fact greater than \$1000 per hour, notional revenue at risk estimates will be systematically underestimated by this method.

The revenue potentially at risk for the 22 sample clubs, assuming an average game speed of 5.5 seconds and a \$1000 per hour turnover limit, is reported in chart 3.1. Based on this method, average club revenue at risk due to the introduction of a \$1 maximum bet limit was estimated at 13 per cent for clubs in NSW.

### *Correcting for underestimation: incorporating high turnover rate effects*

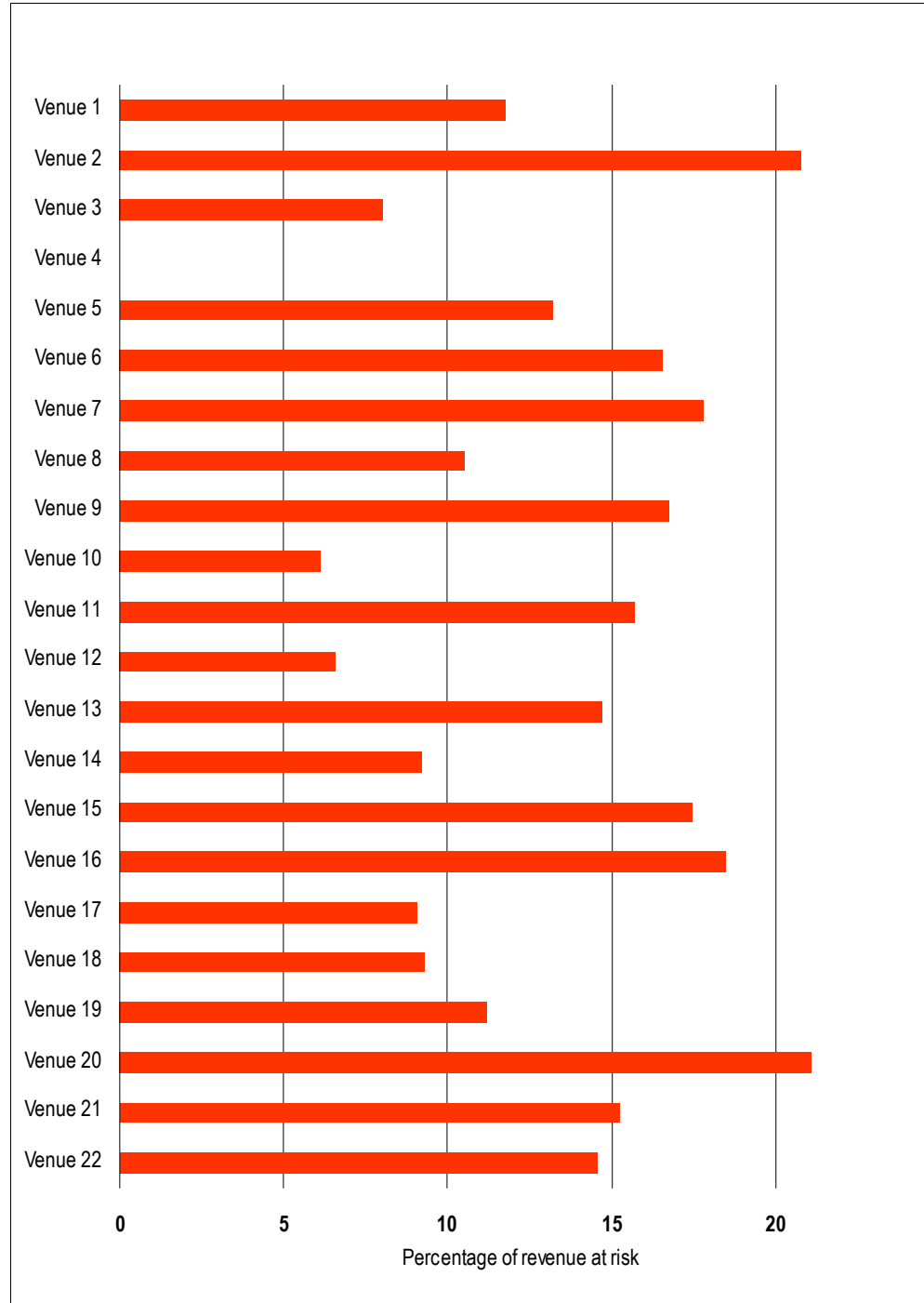
To test how seriously this method might bias downwards the estimates of revenue at risk, a more detailed revenue profile has been obtained for a subsample of 12 club venues. Revenue data based on turnover greater than \$1000 per hour was divided into three additional turnover segments as follows: \$1000–\$1500, \$1500–\$2000 and greater than \$2000 per hour. Based on this data the assumption that the turnover rate was exactly \$1000 for revenue generated from the 'greater than \$1000' turnover segment no longer needed to be made. Revenue at risk could be calculated for the revenue segments based on turnover of \$1000–\$1500 and \$1500–\$2000 per hour. (For revenue generated in the 'greater than \$2000' turnover segment the turnover rate was assumed to be exactly \$2000.)

Revenue at risk was estimated for the 12 venues under two scenarios:

- revenue generated from turnover of up to \$1000 per hour, but not beyond, can be accounted for, with all turnover greater than \$1000 per hour assumed to be exactly equal to \$1000 per hour; and
- revenue generated from turnover of up to \$2000 per hour can be accounted for.



3.1 Revenue at risk for sample clubs<sup>a</sup> (assuming \$1000 per hour turnover limit)



<sup>a</sup> Estimated revenue at risk for Venue 4 is less than 1 per cent.

Data source: CIE estimates.

Revenue at risk was calculated under both scenarios with an assumed game speed of 5.5 seconds. With a revenue profile that limits revenue generated from turnover to \$1000 per hour, estimated average minimum revenue at risk was 13 per cent for this subsample of 12 venues (coincidentally the same as that for the full sample of 22 clubs). However,

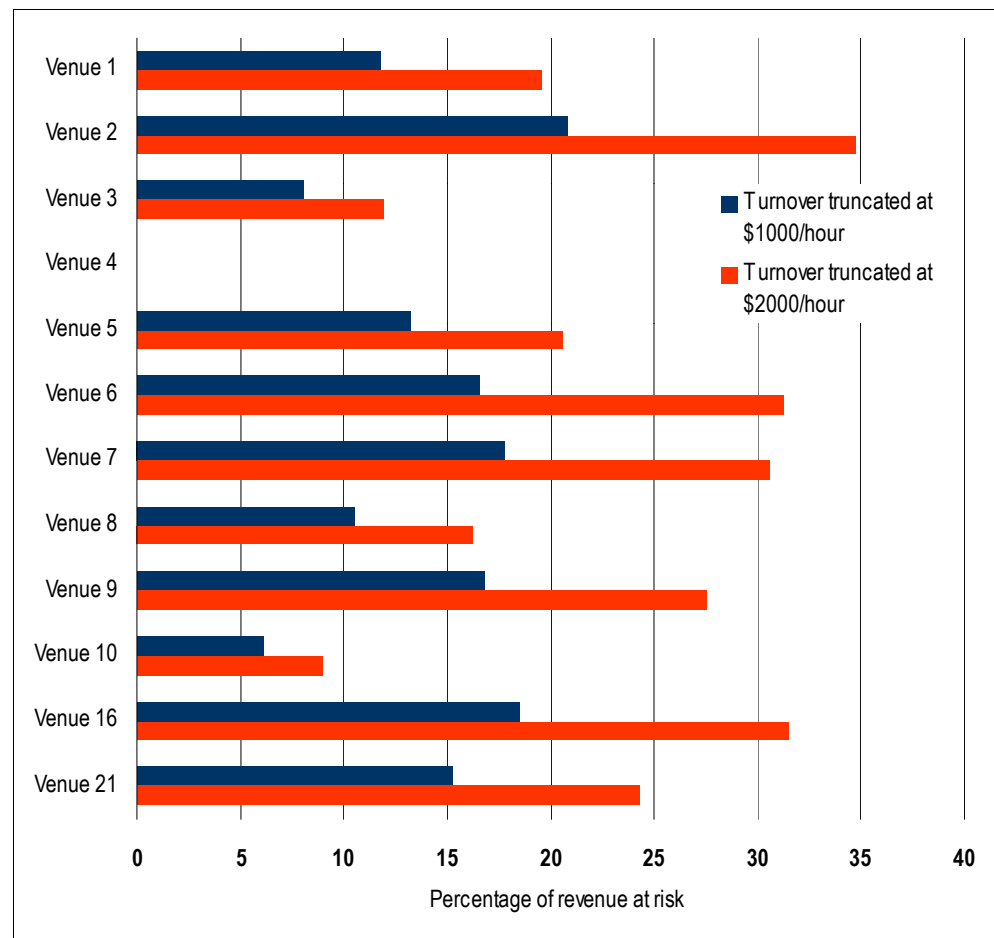
average revenue at risk rises to 21 per cent when a more detailed revenue profile – based on turnover details of up to \$2000 per hour – is employed for the 12 clubs for which it is available (see chart 3.2).

Chart 3.2 illustrates the likely magnitude of underestimation of revenue at risk if detailed information on high ratios of turnover is unavailable or ignored. Putting together the revenue at risk for all 22 clubs using the available data for each involves:

- revenue at risk figures for 10 clubs where revenue generated from turnover of up to \$1000 per hour obtained; and
- revenue at risk figures for 12 clubs where revenue generated from turnover of up to \$2000 per hour.

The result is an average club revenue at risk figure of 17 per cent, which for the reasons stated, is likely to be conservative.

### 3.2 Revenue at risk for turnover rates truncated at \$1000 and \$2000/hour<sup>a</sup>



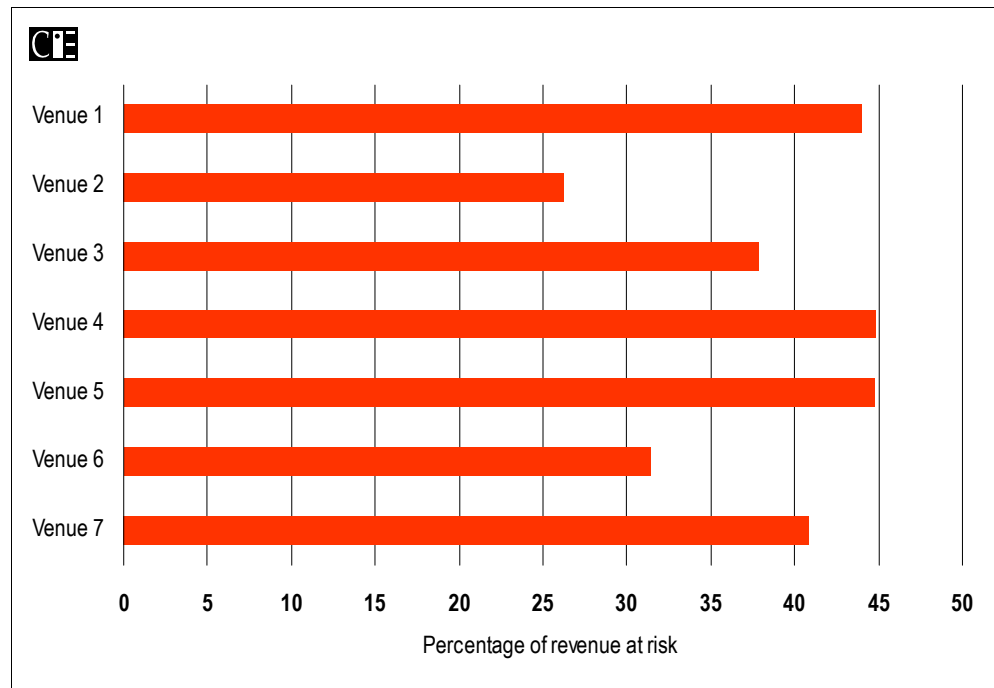
<sup>a</sup> Estimated revenue at risk for Venue 4 is less than 1 per cent.

Data source: CIE.

**Hotel revenue at risk**

Detailed data which accounted for revenue generated from turnover of up to \$2 000 per hour was retrieved for *all* 7 sample hotel venues. Hotel revenue at risk estimates for sample hotels show considerably less variation than that of clubs (see chart 3.1). Based on these figures average minimum hotel revenue at risk due to the introduction of a \$1 maximum bet limit is estimated at 39 per cent.

**3.1 Revenue at risk for sample hotels**



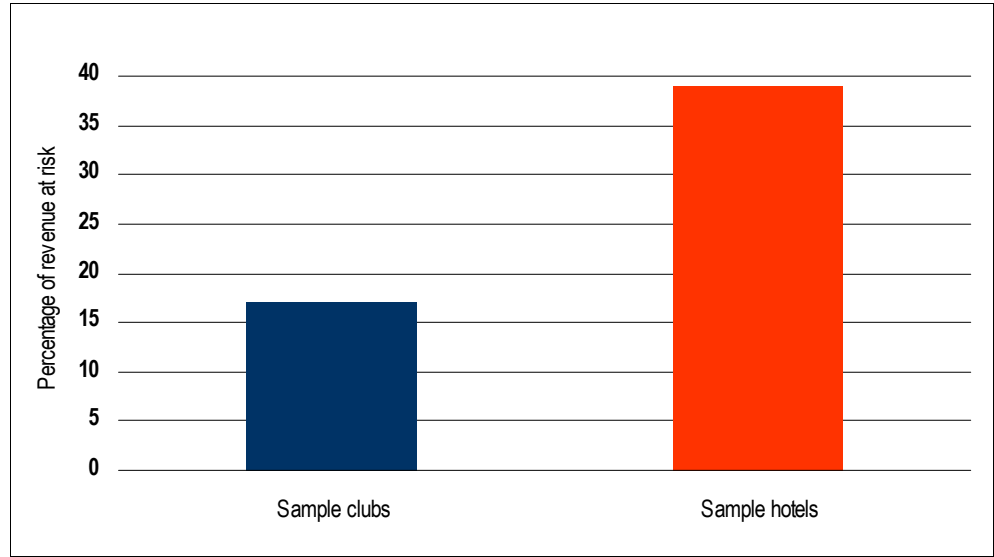
Data source: CIE.

Two observations can be made on the basis of charts 3.1 to 3.1. Revenue at risk estimates show considerably more variation across club venues relative to that for hotels. With an assumed game speed of 5.5 seconds, average minimum revenue at risk from imposing a \$1 maximum bet limit is 17 per cent for club venues and a much higher 39 per cent for hotel venues.

**Sensitivity analysis**

A key assumption used to estimate revenue at risk from introduction of a \$1 maximum bet is game speed per play. Actual game speed will vary from player to player, machine to machine and venue to venue. The sensitivity of the revenue at risk estimates to different game speeds was investigated by varying the assumed average game speed and observing the effect on revenue at risk. Game speeds of 4.8 and 6.8 seconds were used to provide lower and upper bounds around the 'best' estimate of average game speed,

3.1 Average revenue at risk estimates for sample clubs and hotels

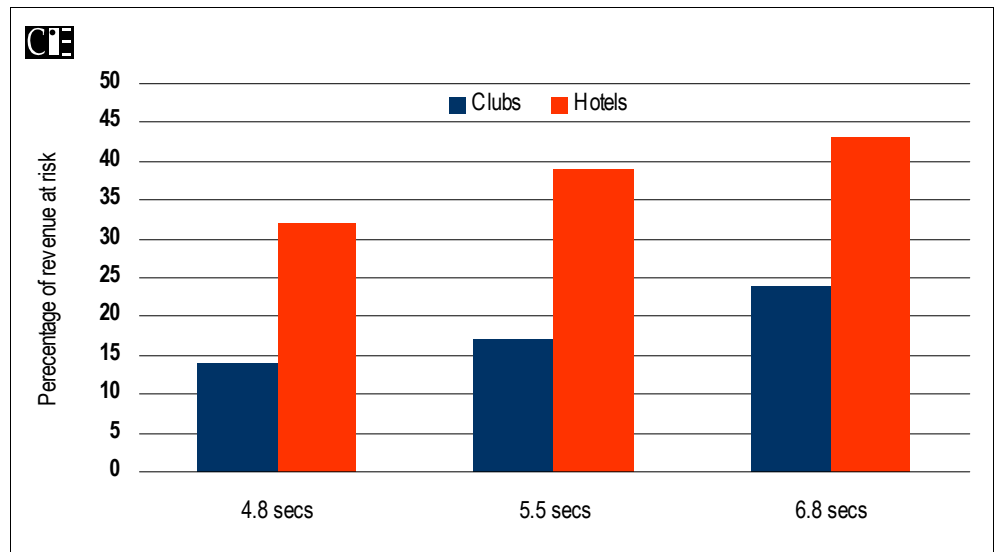


Data source: CIE.

5.5 seconds. The upper and lower bound estimates of game speed were based on a technical minimum reel spin time of 2.8 seconds and multiples of an interval of two seconds which is the assumed minimum amount of time required to allow for machine features incorporated into games.

Potential revenue at risk for all three game speeds (4.8, 5.5 and 6.8 seconds) are shown in chart 3.2. Club revenue at risk estimates for each game speed was estimated via the second method described above using data for all 22 venues. Estimated revenue at risk rises considerably as game speed is slowed for both club and hotel venues. With an average game speed of 4.8 seconds average minimum revenue at risk for clubs and hotels is

3.2 Sensitivity of revenue at risk



Data source: CIE.

14 per cent and 32 per cent respectively, compared with 24 per cent and 43 per cent when game speed is 6.8 seconds. This indicates that estimates of revenue at risk are sensitive to the assumed game speed. Nevertheless, even at the slowest assumed game speed, on average, clubs and hotels still had a considerable portion of revenue at risk.

These findings are important in considering the likely impact of the LAB proposal to significantly raise the minimum technical game speed. At present there is no information on average game speed in the public arena and the LAB has not specified what it considers to be an average game speed. This study indicates that reliable estimates of game speed are an important element in estimating the impact of changes in gaming machine regulations. Therefore, obtaining refined estimates of game speed is an important area for further research.

## **Potential ‘revenue at risk’ from the implementation of combined machine modification measures**

Potential venue revenue at risk from the introduction of the following combined machine modifications measures were estimated:

- the introduction of a \$1 maximum bet limit and a slower reel spin speed; and
- the introduction of all three gaming machine measures.

### ***Combined impact of a \$1 maximum bet limit and slower reel spin speed***

The LAB has proposed mandatory changes to increase the *minimum* technical speed of a game by 1.5 seconds. This measure will slow down the *average* speed of play. The extent to which it will slow down average play is unknown. If it is assumed that game speed is slowed by the full 1.5 seconds then average game speed used in this analysis would slow from 5.5 at present to 7 seconds. However, some proportion of players will be able to compensate for this modification by playing faster than they do at present. Therefore, for analytical purposes, game speed is assumed to slow to a more conservative 6.3 seconds (the mid point between the current average of 5.5 and an upper bound and of 7.0 seconds). Potential venue revenues at risk, based on a game speed of 6.3 seconds, are estimated at 21 per cent for clubs and 41 per cent for hotels.

### *Combined impact of all 3 gaming machine modifications*

The LAB has also proposed to limit to \$20 the denomination of notes to be handled by machine note acceptors. It is difficult to estimate how this will impact on the attraction of the game, the speed of play and hence, player expenditure. Accordingly, in line with the conservative approach adopted throughout this study, it was assumed that note acceptors would not significantly slow down the rate of play (a highly conservative assumption). Adopting this approach, the 'best estimate' of revenue at risk as a result of all three proposed gaming machine modifications is based on estimates obtained for the combined introduction of a \$1 maximum bet limit and a slower reel spin speed of 6.3 seconds. The combined impact of all three proposed gaming machine modifications on venue revenues is estimated at 21 per cent for club venues and 41 per cent for hotel venues.

For club venues there were sufficient observations to establish a confidence interval for the estimate of 21 per cent. Based on the individual percentages at risk for each club there is a 95 per cent chance that the average for all clubs lies inside the range 17 to 26 per cent.

### **Summary of initial revenue at risk estimates**

Revenue at risk estimates resulting from the introduction of proposed gaming machine modifications based on tracking of current player behaviour in 22 clubs and 7 hotels are as follows:

- Potential revenue at risk as a result of the introduction of a \$1 maximum bet limit is estimated at 17 per cent for club venues and 39 per cent for hotel venues.
- Potential revenue at risk as a result of the introduction of all 3 gaming machine modifications is estimated at 21 per cent for club venues and 41 per cent for hotel venues.

These estimates provide a *starting point* for measuring the threat to venue revenues from gaming machine modifications as they assumed that players do not compensate significantly through behavioural change (eg. by spending longer at venues etc) in response to these proposed changes. The impact of possible compensating player behaviour on revenue at risk estimates is investigated in chapter 4.

# 4

## *Qualifying estimates of revenue at risk: other approaches*

POTENTIAL REVENUE LOSSES estimated in chapter 3 provide a *starting point* for measuring the threat to revenues from gaming machine modifications. But estimates based on observations of current expenditure patterns on existing machines provide only one data source, albeit a major one, from which to formulate an estimate. Two other sources were drawn upon, both of which involved exposure of players to modified machines. Questionnaire response data and observed changes in expenditure in ‘blind trials’ of modified machines both provided additional information on potential expenditure changes by players in response to gaming machine modifications. This data gave support to the reasonableness of initial estimates of venue revenue at risk formulated in chapter 3.

### **Player behaviour and revenue at risk**

Revenue at risk estimates developed earlier in this report assumed players did not modify the way they played gaming machines to compensate for constraints imposed on them by machine modifications. That is, they were assumed to allocate the same amount of time to gaming in these venues but expenditure changes would be dictated by lower limitations on maximum bet size or the opportunity to play fewer games in a given time. However, this may not be the case. For instance, players may overcome the expenditure constraint of a \$1 maximum bet limit and slower game speeds by spending more time playing the machines, or subject to technical limitations, by playing faster than they do at present. The extent to which players engage in so-called ‘compensating behaviour’ will impact on gaming machine revenue, and as a result, venue revenue. This has implications for estimates of potential revenue at risk.

To gauge possible player responses to machine modifications, questionnaire data was retrieved from players in 7 hotels and 4 clubs in NSW. The modified machines were played, by invitation, by a sample of players in the participating venues. Players experienced the modified machines, and in light of their experiences, were asked to complete a questionnaire

administered by Sydney University Department of Psychology. A total 538 questionnaires were completed, eighty per cent of these were from clubs, the remaining 20 per cent from hotels. There were 7 possible machine configurations experienced by players which resulted from the 3 proposed machine modifications (see table 4.1). Questionnaire participants played all 7 machine configurations, and then completed questionnaires.

The questionnaire was designed to gauge players' responses to machine modifications in terms of:

- total gaming machine expenditure;
- total expenditure in clubs and hotels; and
- the extent to which players might engage in compensating behaviour in the future if modified machines were the only ones available. The questionnaire is attached as appendix B.

### *How do players respond to machine modifications?*

Changes in player behaviour will have different implications for gaming machine revenues and venue revenues.

Players can respond to machine modifications by engaging in:

- compensating behaviour;
- expenditure switching within a venue; or
- expenditure switching to activities offered outside venues.

If players engage in compensating behaviour – that is players modify their behaviour to maintain pre machine modification gaming expenditure levels – estimates of revenue at risk previously obtained from observed play on unmodified machines, will need to be adjusted downwards. (It should be recalled, however, that these earlier estimates have been deliberately based on conservative assumptions). The higher the proportion of players who engage in compensating behaviour, the less gaming machine revenue and hence club and hotel revenue is directly at risk.

#### 4.1 Possible combinations of machine modifications

	<i>Possible machine combinations</i>			
	\$1 maximum bet	Slower reel spin	Note acceptors	All 3 changes
\$1 maximum bet	✓			
Slower reel spin	✓	✓		
Reconfigured note acceptors	✓	✓	✓	
All 3 changes				✓

Source: CIE.



Questionnaire data was used to investigate whether players would engage in compensating behaviour in response to gaming machine modifications which include lower maximum bet size and slower reel spin. To fully compensate for machine modifications players need to:

- spend the same or more money on the modified machines; *and*
- spend more time playing the machines (or play faster).

Players who do not modify their behaviour in both of these ways will contribute to 'revenue at risk'.

Questionnaire results indicate that approximately 60 per cent of players in the 4 clubs and 39 per cent of players in the 7 hotels forming the basis for this study said they would engage in this kind of compensating behaviour as a result of the introduction of any or all of the proposed gaming machine modifications (see chart 4.1). Revenue generated from these players would not change in response to machine modifications if they behave as stated. Consequently, revenues generated from these players would remain unchanged, with the result that they would not contribute to machine or venue revenue at risk.

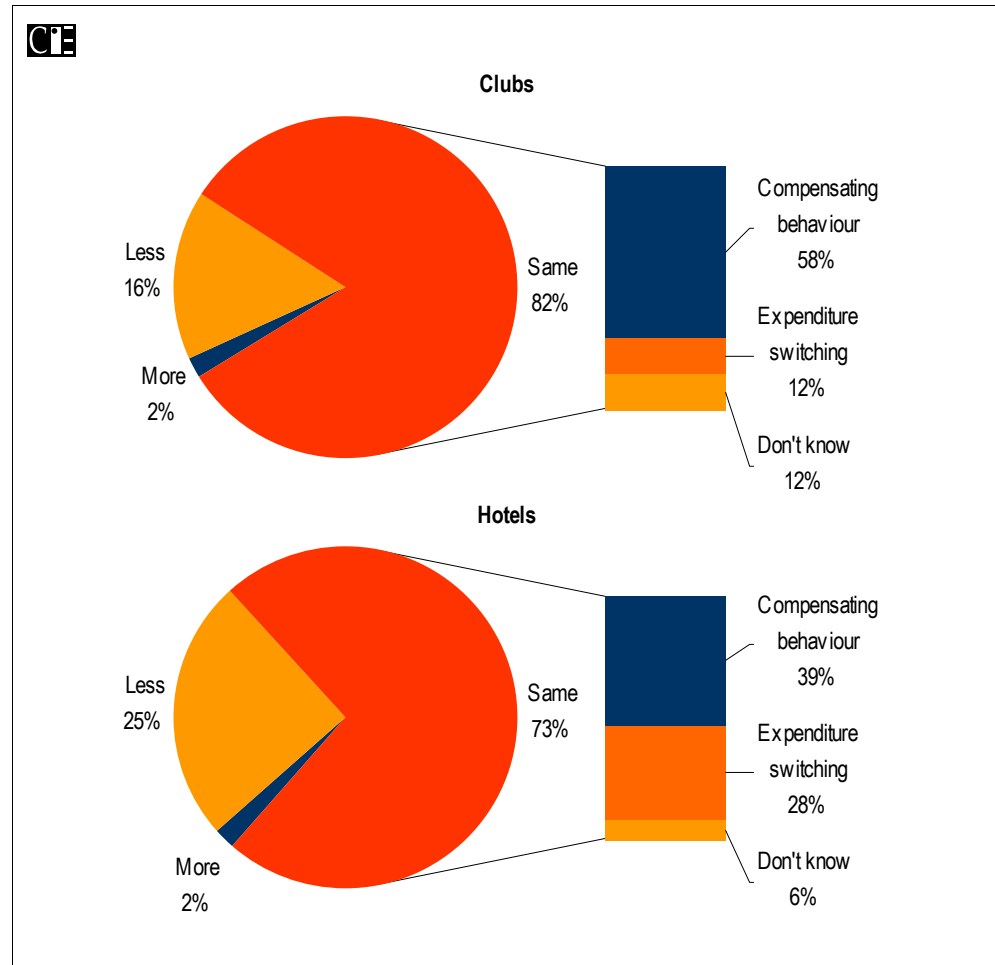
However, an issue for this study is what proportion of those interviewed would have been players whose existing behaviour would be such that the constraints imposed by the modified machines would have little impact on their spending. In other words, how many of the players sampled were slow play, low bet size players? We return to this issue below. A further consideration is the extent to which respondents to surveys of this kind 'self select' in a way that may bias results.

#### *Possibility of self selection bias*

The process of player recruitment for questionnaires based on invited play may lead to self selection bias which will have important implications for estimated revenue at risk. It is probable that players with the weakest time constraints were more likely to agree to participate in the questionnaire trial. It is these players – those with weak time constraints – who are most likely to engage in compensating behaviour in response to the proposed machine modifications.

Players who do *not* adopt compensating behaviour will contribute to *machine* revenue at risk. This group consists of players who indicated they would spend less and those who would engage in expenditure switching behaviour in response to machine modifications. Questionnaire results indicate that 28 per cent of individuals in the sample clubs and 53 per cent

## 4.1 Machine modifications and player expenditure: hotels and clubs



Data source: CIE.

of individuals in hotels will not engage in compensating behaviour, and as such will contribute to machine revenue at risk. They will tend to direct (some of) their spending elsewhere.

Players may engage in expenditure switching behaviour within a venue, ie. they will spend less on gaming machines as a result of the modifications but spend the same amount in total at the venue. This type of behaviour will be revenue (but not profit) neutral for venues. Sample results show that 12 per cent of players in clubs and 28 per cent in hotels would engage in expenditure switching behaviour within venues. These players will contribute to *machine* revenue at risk but not to *venue* revenue at risk.

A further option is for players to spend less in total at the club or hotel as a result of machine modifications, ie they would switch their expenditure to activities offered outside club and hotel venues. Sixteen per cent of sample club players and 25 per cent of hotel players indicated that they would spend less in total at the club or hotel. For these individuals, average expenditure would fall by 37 per cent for hotel respondents and 34 per cent

for club respondents. This type of behaviour would impact on venue and gaming machine revenues.

#### *Apparent revenue at risk using the questionnaire data*

Eleven per cent of the sample club players indicated they would spend, on average, 43 per cent less on the machines as a result of the \$1 maximum bet limitation. (Players were asked about reduced expenditure intentions in response to each of the individual modifications but not to all.) This implies a 5 per cent revenue at risk figure for one modification alone. Because the effects of all three modifications is likely to be somewhat stronger, this 5 per cent loss of gaming revenue can be taken as the *minimum* revenue at risk from these changes should they include such a maximum bet limitation. There are, however, good reasons to believe that such an estimate is seriously downwardly biased, as discussion below reveals.

Twenty seven per cent of sample hotel players indicated that, on average, they would spend 44 per cent less due to the introduction of a \$1 maximum bet limit. This implies that a *minimum* of 12 per cent revenue is at risk from a \$1 maximum bet limit. This figure is considerably higher than the sample club figure, and thus supports the earlier findings that a higher percentage of revenue is at risk in hotels than clubs.

Lower bound estimates of the potential impact of the introduction of individual gaming machine modifications outlined in table 4.1 show that the modification which is likely to have the biggest impact on club players' satisfaction is a slower reel spin speed, while for hotel players it is the introduction of a \$1 maximum bet limit. Note acceptors have the least impact on both club and hotel player satisfaction, and hence expenditure.

#### 4.1 Lower bound estimates of revenue at risk

	<i>\$1 maximum bet</i>	<i>Slower reel spin speed</i>	<i>Reconfigured note acceptor</i>
	%	%	%
Clubs	5	10	2
Hotels	12	11	6

Source: CIE.

### *Player 'types' and their contribution to revenue at risk*

Not all players will contribute equally to revenue at risk. The higher the average bet size of a player the greater is the potential impact on player expenditure from the introduction of a \$1 maximum bet limit. For instance, if a player typically bets \$10 per play a proportional reduction in their bets

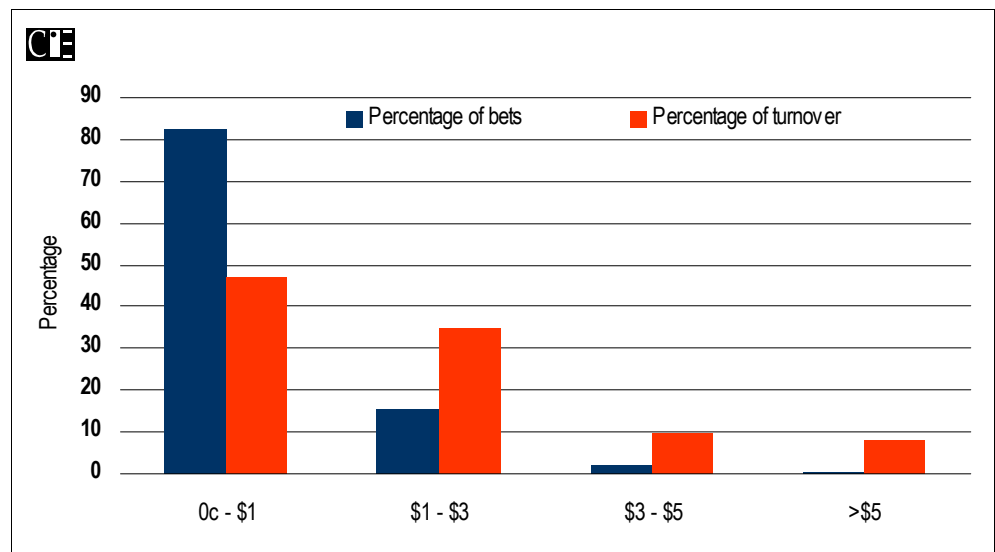
will affect machine revenue more than the same proportional change for a typical \$2 player for the same time spent at the machines. Therefore, players with a 'high' average bet size will contribute more to potential revenue at risk than those whose bet size is relatively low. As different 'types' of players contribute differently to revenue at risk it is important to determine which players – players with a relatively high or low average bet size – will engage in compensating behaviour and/or spend less in response to machine modifications.

Collating statistical data compiled on machines manufactured by Aristocrat Leisure Ltd, machine data was retrieved to gain an insight into the likely distribution of bet size. The data was retrieved over a period of 4 weeks in one venue and over 3 weeks in the second venue. This data showed that the distribution of bet sizes are heavily concentrated below \$1, with just over 82 per cent of bets falling into this bet size class (table 4.1).

However, it is also known that the small proportion of players who have a relatively high average bet size – greater than \$1 – are the players that contribute most to gaming machine turnover, revenue and hence, revenue at risk. Based on this, if our sample of players was in fact representative of player type it would be expected that 'low' average bet size players – players whose gaming machine expenditure are likely to be *least constrained* by machine modifications – would dominate the sample.

To test whether this was the case, historical spend data was retrieved, whilst preserving complete player anonymity, for a subset of the sample players. The data confirmed that the majority of sample players participating in the trials – 96 per cent – were 'low' average bet players,

#### 4.1 Sample average bet size distribution



Data source: Aristocrat data (2001).

with an average bet size of less than \$1. Therefore, only 4 per cent of the subsample would contribute to revenue at risk, as previously defined.

Questionnaire respondents were predominantly 'low' risk players, contributing little, if at all, to revenue at risk. Given this, the questionnaire results can only be used to provide a lower bound estimate of potential players' responses to machine modifications. Combined with the likelihood of self selection bias favouring participation by 'time rich' individuals, the results from this approach are likely to significantly underestimate revenue at risk.

### *Test bed trials*

Blind test bed trials were conducted over a seven day period in 4 club venues as another means of assessing likely responses to machine modification to track turnover on modified versus unmodified machines, and player expenditure. Seven modified machines were installed in each venue, modified as follows: \$1 maximum bet limit, slower reel spin, reconfigured note acceptor, \$1 maximum bet limit plus slower reel spin, \$1 maximum bet limit and reconfigured note acceptor, reconfigured note acceptor plus slower reel spin, and \$1 maximum bet limit plus slower reel spin plus reconfigured note acceptor. Alongside each modified machine there was an unmodified control machine for comparison. These control machines offering the same game as the modified machines were available to players a week before the comparison trials. Turnover on all machines during the trial period was compiled by participating venues and collated by Visionads Pty Ltd.

Unlike the questionnaire survey based approach, players were not explicitly invited to play modified machines. Nor were these explicitly identified. Venues simply put up notices that modified machine types were on trial within the venue. Players were free to select from the available machines.

Table 4.1 shows the percentage difference in turnover between unmodified (control) machines and variously modified test machines at 4 club venues. Thus at Club 1, revenue from the machine with a \$1 max bet limit (machine A) was 60 per cent lower than its unmodified counterpart. The machine with all these modifications (ABC) had a 66 per cent lower turnover than its unmodified counterpart.

Results obtained from these test bed trials show that turnover (and implied revenue) generated from the modified machines was lower on average than that generated by the unmodified machines, with one exception – note acceptor modification as a stand alone change (see table 4.5). The reasons for this are unclear and larger sampling would be needed to shed light on this.

## 4 QUALIFYING ESTIMATES OF REVENUE AT RISK: OTHER APPROACHES

## 4.1 Blind trials — observed turnover differences between modified and control machines — 4 club venues (% differences)

Venue	Modification			AB	AC	BC	ABC
	Max \$1 bet A	Slower reel spin B	Modified note acceptor C				
Club 1	-60	-48	-1	-66	-62	-41	-66
Club 2	-12	-40	-9	-25	-39	-42	-36
Club 3	-21	-30	24	-45	-39	-67	-32
Club 4	-3	-26	99	-35	-53	-49	-66
Average	-24	-36	28	-43	-48	-50	-50

Note: AB refers to machines which had both lower max bet and slower reel spin, BC refers to those with slower reel spin and modified note acceptors etc.

Source: CIE estimates.

Reductions in turnover increased as the number of modifications placed on the machines increased. (See table 4.2) With only 1 modification — a \$1 maximum bet limit — average turnover fell by 24 per cent, compared with an average of 50 per cent for machines with all 3 modifications.

## 4.2 Turnover and implied revenue reductions: modified vs. unmodified machines

Machine modification	Average implied change in revenue %
\$1 maximum bet limit <sup>a</sup>	24
\$1 maximum bet limit and slower reel spin speed	43
All 3 modifications	50

<sup>a</sup> Due to technical problems data for 1 venue is based on 6 not 7 days worth of polling.

Source: CIE.

These figures represent an over estimate of revenue reductions that would accompany the introduction of machine modifications because of the fact that if these changes were legislated, players could not substitute away from the modified machines without substituting away from gaming *all together*. Any such move away from gaming is likely to be less pronounced than substitution of a more preferred machine type for a less preferred one.

Another way of putting this is that for many players the modifications are similar in effect to raising the price of a bet. These players are now constrained in the amounts they can risk in any single play or the speed at which they must play or in their ability to convert large notes to coins. If these changes, separately or together, reduce the quality of the game in players' eyes, even though the expected payment of a game is unchanged, then this is equivalent to raising the effective price of playing those machines relative to others.

It is well known that consumers are more responsive to relative price changes when there are ready substitutes whose prices do not change. The availability of unmodified machines fits this case. However, if all machines

were modified this would be equivalent to raising the price of playing gaming machines relative to other gaming, gambling and entertainment activities – not such close substitutes. The resulting substitution away from gaming machines will be less in these circumstances.

Therefore, the results obtained from test bed trials provide an upper bound for estimating potential revenue losses from players.

### *Cross border substitution possibilities*

It is possible for players who are located near NSW borders to cross over the border and play gaming machines in adjoining States. If these players show a preference for unmodified machines over the newly modified machines then the probability of these players crossing over State borders to play the unmodified machines will increase. The possibility and likely extent of this occurring was explored through the questionnaire approach.

Questionnaire participants in one border club were asked whether they would continue to play the modified gaming machines in NSW or cross over the border to play unmodified machines. The sample consisted of 160 participants, of which 14 per cent indicated they would cross over the border to continue playing unmodified gaming machines. This relatively low number again may reflect the ‘type’ of players – low bet size, low time constraint – dominating the sample.

## **What does all this mean for revenue at risk?**

Questionnaire data was used to provide a lower bound for potential club gaming *machine* revenue losses as a result of the introduction of a \$1 maximum bet limit. These figures provide a lower bound of 5 per cent for potential venue revenue losses. An upper bound of 24 per cent was derived from blind trials data as the average effect of this modification when choice is available. Due to sample bias of club players who participated in the questionnaire trials, it is highly probable revenue impacts will be significantly above the lower bound estimate. However, the upper bound estimate allows for substitution effects between modified and unmodified machines within a venue and as such revenue losses are unlikely to be as high as these results suggest.

Therefore, the starting estimate of 17 per cent venue revenue losses resulting from the introduction of a \$1 maximum bet limit appears to be a reasonably robust estimate of potential revenue at risk given the conservative assumptions on which it is based. No independent lower

bound estimate was provided by the questionnaire data for the introduction of all three gaming machine modifications. Five per cent will be an underestimate. The upper bound provided by test bed data is 50 per cent. The initial estimate of potential revenue at risk – estimated at 21 per cent – from all 3 gaming machine modifications falls well within these bounds. Therefore, it will be used as the ‘best’ available estimate of potential revenue at risk.

Hotel questionnaire data provides lower bound estimates of 12 per cent of potential revenue at risk, but these estimates have been shown to be downwardly biased. Test bed data was not retrieved for hotel venues and as such, upper bound estimates of potential revenue at risk are not available. Therefore, the initial estimates of hotel revenue at risk provide the ‘best’ available estimates of potential revenue at risk. The following analysis will be based on potential venue revenue losses of 39 per cent due to the introduction of a \$1 maximum bet limit and revenue losses of 41 per cent if all proposed gaming machine modifications are introduced.

Potential statewide impacts on venue revenues, State and Commonwealth government revenues and associated employment losses, as a result of the introduction of gaming machine modifications are estimated in chapter 5. These estimates are based on our ‘best’ estimates of potential club and hotel venue revenue at risk.



# 5

## *The potential impact of gaming machine modifications on NSW*

POTENTIAL CLUB AND HOTEL gaming machine revenue losses resulting from the introduction of all three proposed machine modifications are estimated at \$1.05 billion. Venue revenue losses of this order would have significant flow on effects, particularly with regards to *State* government revenues and employment in the short to medium term.

### **Potential venue revenue at risk in NSW**

#### *NSW Clubs-how much is potentially at risk?*

Total statewide minimum club machine revenue at risk is estimated via two methods:

- using average venue revenue at risk; and
- using revenue at risk as a function of venue size.

#### *Method 1*

Average club gaming machine revenue at risk as a result of the introduction of a \$1 maximum bet limit have been estimated at 17 per cent through the preceding analysis. Based on total club gaming machine revenues of \$2.5 billion in 1999 (DGR 2000) total statewide club revenue at risk as a result of the introduction of a \$1 maximum bet limit is estimated at \$440 million.

A conservative estimate of average club revenue at risk as a result of the three proposed changes – introduction of a \$1 maximum bet limit, a slower game speed and reconfigured note acceptors – was estimated at 21 per cent. Based on this, the combined impact of these changes on gaming machine revenues is estimated at \$543 million.

*Method 2*

To ensure that the 'average' revenue at risk estimate adequately reflected the revenue at risk for various club sizes, revenue at risk estimates were obtained for four club revenue sizes as follows: \$0-\$1 million, \$1-\$10 million and greater than \$10 million. Revenue at risk estimates for each club venue size were derived from the sample venue data, which was assumed to be representative of clubs across NSW. These figures should be treated with caution because they rely on using a subsample of venues making up the larger sample.

Based on these figures, total club revenue at risk as a result of the introduction of a \$1 maximum bet limit is estimated at \$473 million. The combined revenue impact of the introduction of all 3 proposed gaming machine modifications is estimated at \$704 million (see tables 5.1 and 5.2). These estimates are very similar to those obtained using the 'average' estimate of revenue at risk (ignoring club size). Therefore, our estimate of 'average' revenue at risk appears to adequately capture revenue at risk for purposes of State analysis.

To preserve the practice of adopting conservative estimates in this study further analysis will use club revenue loss figures obtained in Method 1.

*Potential impact on clubs*

It is known that gaming machine revenues account for approximately 64 per cent of all club revenues. Based on this, total club revenues for NSW can be estimated at \$4.04 billion dollars. If gaming machine revenues fall by

**5.1 Revenue at risk with the introduction of a \$1 maximum bet limit**

<i>Club gaming revenue size</i>	<i>Revenue at risk</i>	<i>Gaming Revenue</i>	<i>Revenue at risk</i>
\$	%	\$m	\$m
0-1 million	9.5	272	25
1-10 million	16.4	1 226	201
10 million plus	21.6	1 088	235
<b>Total</b>			<b>462</b>

Source: CIE estimates.

**5.2 Combined impact of all three modifications on revenue at risk**

<i>Club gaming revenue size</i>	<i>Revenue at risk</i>	<i>Gaming Revenue</i>	<i>Revenue at risk</i>
\$	%	\$m	\$m
0-1 million	11	272	29.9
1-10 million	19.5	1 226	239.1
10 million plus	26.5	1 088	288.3
<b>Total</b>			<b>557</b>

Source: CIE estimates.

the estimated \$440 million as a result of a \$1 maximum bet limit, total club revenues would fall by 11 per cent to \$3.6 billion. On the same basis, the combined impact of the introduction of all three gaming machine modifications will result in a 13 per cent – or \$543 million – reduction in *total* club revenues, falling from an estimated \$4.04 billion to \$3.49 billion. This estimate does not allow for the partial offset from expenditure switching to other ‘in venue’ activities – activities which are inherently less profitable.

These figures become extremely important when looked at in conjunction with club profitability figures. It was seen in chapter 2 that there are a number of clubs, particularly the smaller clubs, that are already only marginally profitable. Revenue losses of the order estimated above are unlikely to be sustainable for such clubs. Therefore, the potential impact of gaming machine modifications on clubs throughout NSW could be much more dramatic than a proportional scaling back of activity, with clubs whose profitability is already marginal becoming unviable. The closure of such clubs would impact directly on local employment opportunities, government revenues and local facilities.

Average club profitability is estimated across NSW at 7.3 per cent with figures falling as low as 3.4 per cent for the group of smallest clubs (ACG 2000). (See chapter 2 for profitability by club size figures). These figures provide an indication of the small margins already faced by certain clubs.

#### *Additional machine replacement costs*

In addition to potential revenue losses as a result of the introduction of gaming machine modifications, clubs will also face an increase in outlays as they will be required to replace the existing stock of gaming machines with newly modified gaming machines. According to the GIO Group (personal communication September 2001) approximately 81 per cent of the total machine population is replaced every three years, whilst 19 per cent of machines would not be replaced within this period. (This translates into an annual figure of 6.3 per cent. This figure may be somewhat inflated through the need for clubs to comply with so called x-series protocols, boosting recent replacement rates.)

If modified machines were phased in over a three year period, neither the revenue implications nor the cost implications would be as severe as they might otherwise be. But they would be nevertheless substantial. The ‘blind trials’ have shown what might happen to revenues from machines that are considered less attractive than those now available. And if 19 per cent of machines would not have otherwise been replaced in a 3 year period,

6.3 per cent mandated replacements would have to occur each year to meet the new requirements. If all machines had to be replaced in the space of one year the impact would be much more severe.

Based on these figures, total club gaming machine figures of 76 329 and an average machine replacement cost of \$15 000, the club industry alone would face additional annual costs in the order of \$72 million to replace gaming machines which would not ordinarily have been replaced within this period. The comparable figure for hotels, based on machine numbers of 25 094, would be \$23 million. These additional outlays would impact on venue cash flows and revenues, putting further financial pressure on venues which would already be facing lower revenue streams.

#### *Expenditure switching within clubs*

Gaming machines make a significantly greater contribution to club average revenues than bar or food sales. On average, for every dollar spent on gaming machines, 65 cents of this contributes to net club revenues. This can be compared with average rates of 15 cents for bar sales and -13 cents for food sales (KPMG 2001).

Players who decide to spend less on gaming machines as a result of gaming machine modifications, may decide to spend some proportion of this money on drinks and/or food. If this type of 'expenditure switching' behaviour occurs, venue revenues will be adversely impacted upon, as expenditure on these activities contribute significantly less to net club revenues than does gaming machine expenditure(see table 5.1.)

As an illustration, the potential impact on club revenues of expenditure switching behaviour is estimated if all money previously spent on gaming machines is switched within the venue to:

- bar sales;
- half spent on bar sales, half on food sales; and
- all is spent on food sales.

#### 5.1 Contributions to club net revenues by source

	<i>Revenue contribution</i>
	Cents per dollar
Gaming machines	65
Bar sales	15
Bar and food sales	1
Food sales <sup>a</sup>	-13

<sup>a</sup> Negative figure for revenue generated from food sales is due to cross subsidisation from other activities.

Source: Based on figures from KPMG, 'Club Performance', February 2001.

The potential club revenue losses due to the introduction of a \$1 maximum bet limit are estimated at \$440 million before duty and \$345 million after an average duty of 21.7 per cent is paid. Using an average contribution of 65 per cent, this revenue equates to \$286 million contraction in club net revenues before duty and \$224 million after duty. This is significantly more than the \$66 million or \$4.4 million in club revenues which would be generated if this expenditure was switched from gaming machines to bar sales or bar *and* food sales, respectively. If all of this expenditure was switched to food sales, clubs would make a loss in the order of \$57 million. This would stimulate changes of a fundamental trend in the way in which venues priced their services.

Club gaming machine revenue losses due to the introduction of all 3 gaming machine modifications are estimated at \$543 before duty and \$425 million after duty. This expenditure generates on average, \$353 million in club net revenues before duty, and \$276 million after duty, compared with \$81 million and \$5.4 million in club net revenues which would be generated if this expenditure was switched from gaming machines to bar sales and bar and food sales, respectively. Once again, if this expenditure was switched into food sales clubs would make losses in the order of \$70 million. Therefore, after deducting duty on gaming revenues, club net revenue losses from expenditure switching behaviour of this type as a result of all 3 gaming machine modifications range from \$195 million if all expenditure is switched to bar sales to \$346 million if all expenditure is switched to food sales.

It is acknowledged that it is highly unlikely that *all* expenditure would be switched into bar and/or food sales. (Keno and TAB betting provide other outlets, but it is known that machine players do not readily substitute between this form of gambling and wagering.) However, these figures provide an illustration of how, even if all expenditure remained within the venue but was spent on other activities, this would do little to mitigate the effects of club revenue losses from gaming machine revenues. It is difficult to extrapolate the impact of 'expenditure switching' behaviour to eventual overall club profitability, but these figures give some indication of the importance of gaming machine revenues relative to 'other' club revenue sources.

### ***NSW hotels-potential statewide revenue at risk***

Hotel gaming machine revenues were \$900 million in 1999. Based on average hotel revenue at risk of 39 per cent, potential hotel revenue losses are estimated at \$351 million as a result of the introduction of a \$1

maximum bet limit. Therefore, the introduction of this single measure has the potential to decrease hotel revenues by over one third. This figure rises to \$369 million, when the combined potential impact of all three gaming machine modifications is estimated.

Due to the limited number of hotel venues in the sample, estimation of potential revenue losses by hotel size was not possible. The very small sample of hotels suggests that the estimated revenue at risk should be treated with considerable caution and should be regarded at best as indicative.

## State revenues

The potential exists for the harm minimisation measures to adversely impact on State revenues. If expenditure is switched away from the relatively highly taxed gaming activity to more lightly taxed expenditures, State revenues could fall substantially as the following analysis shows.

A change in gaming machine revenues will impact directly on State government revenues. Total gaming machine duties paid on club and hotel gaming machine revenues in NSW in 1999 was \$842 million (DGR 2000). Of this total, clubs paid \$561 million in duties – two thirds of the total – while hotels paid \$281 million (DGR 2000).

Poker machine are the gaming machines that are of interest in this study. Although poker machines dominate gaming machine holdings in NSW, it is recognised that a small proportion of all gaming machines in venues are not poker machines. 'Other' types of gaming machines account for less than 1 per cent of all gaming machines in clubs, and 14 per cent for hotels (LAB 2001). These gaming machines generate some unknown proportion of gaming machine revenues. It is acknowledged that these machines will contribute somewhat to revenues, but as this contribution is likely to be small (for clubs negligible) and revenue figures are not disaggregated by type of gaming machine, total gaming machine revenue figures are used.

In the following, we first calculate the potential losses to State revenue if *all* State revenues associated with reduced poker machine activity were lost to the State. The possible net effects are then calculated when allowance is made for tax revenue recovered from spending diverted to other activities within the State.

### *Impact of club revenue losses on State government revenues – gross effects*

Based on total gaming duty and total gaming machine revenue figures the average rate of duty paid on club gaming machine revenues was 21.7 per cent.

To estimate the potential losses in government revenue, the average rate of duty of 21.7 per cent was applied to club revenues as a measure of total tax paid (duties plus GST).

The introduction of a \$1 maximum bet limit could decrease total club gaming machine revenues by an estimated \$440 million, to \$2.15 billion. When an average tax rate of 21.7 per cent is applied to this figure, total tax paid would fall to \$466 million. The State would have received part of this directly as duty and the remainder, collected as GST, would flow back from the Commonwealth as grants. Therefore, the State government would potentially stand to lose \$95 million in club gaming machine duties and GST equivalent grants – as a result of the introduction of a \$1 maximum bet limit.

The introduction of all 3 proposed gaming machine modifications has the potential to reduce gaming machine revenues by \$543 million to \$2.04 billion. Based on an average tax rate of 21.7 per cent, total tax paid would be \$444 million. Therefore, State gaming machine duties and GST equivalent payments from clubs would potentially fall by \$117 million as a result of the introduction of all 3 proposed gaming machine modifications.

### *Impact of hotel revenue losses on State government revenues – gross effects*

Based on total gaming duty and total gaming machine revenue figures for 1999, the average rate of duty paid on hotel gaming machine revenues was 31.3 per cent in 1999.

To estimate the potential losses in government revenue, the average rate of duty of 31.3 per cent was applied to hotel revenues as a measure of total tax paid (duties plus GST).

As a result of the introduction of a \$1 maximum bet limit, total hotel gaming machine revenues could fall by \$351 million, to \$549 million. When an average tax rate of 31.3 per cent is applied to this figure, total tax paid would fall to \$172 million. Therefore, it is estimated that the State government could lose \$110 million as a result of the introduction of a \$1 maximum bet limit on hotels in the absence of compensating revenue generation from other sources.

Based on the same reasoning, the introduction of all 3 proposed gaming machine modifications could reduce hotel gaming machine revenues to \$531 million. With an average tax rate of 31.3 per cent, total tax paid will fall to \$166 million. Therefore, effective State gaming machine duties from hotels could fall by \$116 million as a result of the introduction of all 3 proposed gaming machine modifications.

### *Comparison with 'other' State taxes – the net effect on State revenue*

In its Budget Statement for 2000–01 (NSW Government, 2001), the government has made the following statement in relation to the effect of the New Tax System.

*'Changed funding arrangements associated with national taxation reform will have no net effect on the NSW Budget in 2000–01 (our italics) in 2000–01 and the forward estimate years. According to current estimates, the New Tax System will not produce net financial gains for New South Wales until 2007–08. ...Implementation of the Intergovernmental Agreement on the Reform of Commonwealth State Financial Relations (IGA) will result in a large decline in tax revenue in 2000–01 matched by a large increase in Commonwealth grants. Abstracting from these changes, tax revenue is projected to be virtually unchanged and Commonwealth grants to increase by 3.5 per cent.'*

We take these statements to mean that the overall State revenues – taxes plus grants – will be little changed when expressed as a ratio of final demand in the NSW, post GST.

Prior to the introduction of the New Tax System which includes the GST and flow back of revenue from it to the State in the form of grants, the ratio of State government revenue (taxes and grants) to final demand in NSW was between 12 and 13 per cent, based on 1999–2000 figures (see Treasury, NSW Treasury Budget Statement 2000–01, Budget Paper no.2).

In the analysis that follows, we assume that this is the effective rate at which expenditure, diverted from gaming machines through the harm minimisation measures, would generate revenue for the State (either through taxes or grants coming back from the Commonwealth) when spent in other ways.

It has been found that NSW State taxation and GST equivalent grants from gaming machine expenditure is likely to decrease significantly as a result of the introduction of gaming machine modifications. These estimates are based on the assumption that all of this expenditure is diverted to areas not taxed by the State government, such as savings or 'out of State' gaming activities and furthermore, not generating NSW-based GST which finds its



way back (approximately) through this revamped grants system. However, it is more likely that a large proportion of this expenditure will be spent within the State on goods which attract some level of State government tax and GST. Therefore, some of the gaming revenue taxation losses will be offset by spending in other areas.

It is worth noting that the following estimates assume that *all* of the expenditure which is no longer spent on gaming machines is spent within NSW. This is unlikely to be the case, with some proportion of this expenditure being spent interstate, overseas or possibly saved. Therefore, the estimates are 'best' case estimates as they assume that there are no expenditure leakages from the State economy.

The 'average' tax rate paid by clubs and hotels in NSW on gaming machine revenues in 1999 was 24 per cent. In 1999–2000 NSW State final demand was approximately \$220 billion and total State taxes and grants were \$27 billion. This translates into an average tax rate of between 12 and 13 percent across all State taxed goods in NSW. If it is assumed that all expenditure which is no longer spent on gaming machines is spent on other activities within NSW – a highly conservative assumption – and that these goods and services yield revenue at an average rate of tax of 13 per cent, then the potential loss to State government revenues from such a switch in expenditure can be estimated.

The introduction of a \$1 maximum bet limit could decrease consumer expenditure on gaming machines in clubs and hotels by \$791 million. If this expenditure is spent within the State and is taxed at the 'average' State tax rate of 13 per cent (and ignoring any net effects on the level of State economic activity), then \$102 million would be generated in State government revenues. This can be compared with State government revenues of \$189.8 million when this money is spent on gaming machines. That is, revenue lost to State government due to expenditure switching by consumers is estimated at \$87.8 million.

The introduction of all three gaming machine modifications could reduce consumer expenditure of gaming machines by an estimated \$913 million dollars. If all of this were spent within NSW and is taxed at an average rate of 13 per cent, then State government revenues generated from this expenditure would be \$119 million. This can be compared with \$219 million generated in State revenues when this amount is spent on gaming machines at an average tax rate of 24 per cent. Therefore, the State government stands to lose over \$100 million from such a switch in consumer expenditure. (A similar result is obtained using the gross

effective tax revenue losses calculated separately above for clubs and hotels which total \$233 million.)

## Direct and indirect employment effects

Latest available total employment multipliers based on Australian Bureau of Statistics (ABS) input-output tables for the year 1996-97 indicate that, nationally, there are between 18 and 23 full time equivalent jobs associated with every \$1 million of final demand for the output of the 'sport, gambling and recreational services sector'. These are *average national* figures and do not necessarily accurately capture the *marginal* effects on employment of injecting or withdrawing an additional million dollars worth of expenditure. As such, they provide an upper bound employment impact if that demand was withdrawn and not reinjected elsewhere in the economy.

In reality some (possibly small) fraction of any revenue lost to venues will be saved, some will be spent on other goods and services outside Australia (eg. internet gambling and virtual casinos), some will be spent on other services outside NSW but within Australia and some will be reallocated to other goods and services within NSW.

The ultimate employment effects are a combination of all of these influences. The reallocation of expenditure that would actually occur in response to the harm minimisation measures is unpredictable.

At the most immediate level, industry based estimates of venue revenues and employment show that every \$1 million of club revenue is associated with 0.6 full time equivalent positions. These are simply the *direct* jobs involved in running gaming activities at the venues. Taken at face value this would suggest that relatively few jobs in venues are at risk if the revenue at risk from the combined measures is used as the base. (Employment multiplier effects, by contrast, pick up the further rounds of expenditure withdrawals and their impact in jobs beyond the venues themselves.)

Such a simplistic view of the number of jobs supported by each million dollars of venue revenue understates the likely impact of significant expenditure withdrawal from these venues. It does so because of the contribution to venue *profit margins* of consumer spending on gaming as opposed to other spending in venues. It also ignores the cost increasing impact of these harm minimisation measures on venues profits in machine modifications. Many of the other activities in club venues, if they break even, do not contribute to profit.

The loss of access to gaming machine revenues, and simultaneously increases in cost per dollar of revenue remaining, would necessitate the scaling back or closure of cross-subsidised activities in clubs in particular. In this sense, current gaming revenue is 'high powered' because of its contribution to overall viability of both clubs and hotels.

If venues close whole lines of activity or have to substantially raise prices for other services because of the critical impact of lost gaming revenue the true reduction in final demand for venue services will be much greater than the apparent revenue at risk as calculated in this study. It is this overall impact on venue revenues that would ideally form the true starting point for any multiplier effects.

A distinction needs to be made between the short run (a year or two) and the longer run in considering the likely employment impacts of the harm minimisation measures. The damage to employment effects will be felt in the short run as venues respond to profit effects. Even if their expenditures are entirely directed into other sectors of the NSW economy, compensating employment growth cannot be expected in the short run. This is because of capacity slack that allows enterprises to satisfy a measure of increased demand without taking on additional staff, at least in the short term.

Therefore, up to 18 193 jobs could be at risk in the short term due to the introduction of a \$1 maximum bet limit, and up to 20 999 jobs if all 3 gaming machine modifications are introduced, before longer run employment expansion in other services begins to compensate.

### *Regional effects*

Insufficient published information is available to provide definitive assessments of the likely effects of the proposed harm minimisation measures on individual regions within the State. The sample size underpinning the machine data central to this study, while adequate for whole-of-State generalisations, is not large enough to provide separate estimates of revenue of risk for metropolitan and non metropolitan venues. The variation across venues in either category is such as to swamp any metropolitan-non-metropolitan distinction.

However, earlier analysis suggests that even a 5 per cent loss in revenue (the lower bound estimate for average revenue at risk based on our study) would be a significant threat to the survival of some venues in the State. While this is apparently true for some Metropolitan venues, the employment implications may be more severe in the country regions.

Small area Labour Market Statistics show that recent unemployment rates in many regional areas (excluding Hunter and Illawarra) compare favourably with those in some Metropolitan areas. (DEWRSB Labour Market Regions, March, 2001). But unemployment statistics fail to show the lack of job opportunities in some regional centres or the impact of loss of jobs in the service sector where those (often part time and casual) jobs are supplementing rural sector incomes.

Experience has shown that relatively low reported unemployment rates in inland NSW in particular can reflect the fact that many (especially younger) job seekers have left such areas because of the lack of job opportunities in the region and the prospect of long term unemployment.

The combination of low venue profitability and low alternative job opportunities in some country regions make the likely impact of these harm minimisation measures more severe. The main mitigating feature is that, in smaller centres, the recreational alternatives to clubs and hotels are more limited and the switching of expenditure out of these venues, particularly clubs, may be less likely.

However, even the switching of expenditure from machines to other forms of less profitable activity *within* these venues may be sufficient to tip vulnerable country venues over the edge, at considerable cost to the affected community.

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## *Appendices*



## Appendix A – Estimating net revenue at risk

THIS EXAMPLE IS PROVIDED for a fictitious venue where it is assumed that the average time taken to play a game is 5.5 seconds.

For an average game time of 5.5 seconds:

- the maximum games that can be played in one hour is 654; and
- the maximum turnover if a \$1 maximum bet limit applies is \$654 per hour.

Therefore, with a game time of 5.5 seconds any turnover above \$654 per hour is potentially at risk from a \$1 maximum bet limit.

The Turbo system, by polling machines played by 'loyalty' players, creates a sample from which we can estimate how much money is turned over annually in various ranges – more than a thousand dollars per hour, \$750 – \$1000 etc. From this it is possible to estimate the annual *net revenue* generated in these various turnover classes. (Revenue is calculated as turnover after player returns are deducted and before taxes.)

### Estimating net revenue at risk for a fictitious venue

Table A.1 shows net revenue generated from different turnover rate segments. These figures generated in each segment come from bets, some of which are greater than \$1, some of which are less.

In the example, the venue generates approximately \$1 million from play where the turnover rate is greater than \$1000 per hour. It generates

#### A.2 Player contribution to different revenue segments

	Revenue segments				
	\$	\$	\$	\$	\$
Turnover rate value range (per hour)	1–250	250–500	500–750	750–1 000	>1 000
Dollar value of annual revenue	500 000	600 000	800 000	1 500 000	1 000 000

Source: CIE estimates for fictitious venue.

\$1.5 million where the rate is between \$750 and \$1000 per hour etc.

To estimate net revenue at risk for the bracket where turnover is greater than \$1000 per hour the simplifying (and conservative) assumption that the turnover rate is exactly \$1000 per hour was adopted. So the fraction of revenue at risk is:

- $(1000-654)/1000 = 0.346$
- that is, 35 per cent of net revenue in the greater than \$1000 segment is at risk.

Put another way, if we assume that the turnover rate is exactly \$1000 per hour then the average bet size is \$1.53. Therefore, the fraction of revenue at risk from restricting bets to \$1 or less is:

- $\$(0.53/1.53) = 0.346$

Net revenue at risk for the 'greater than \$1000' segment is:

- $\$1\ 000\ 000 \times 0.346 = \$346\ 000$

To estimate net revenue at risk for the \$750–\$1000 segment the same reasoning applies. The midpoint of this interval is \$875. Using this as the reference point the fraction of revenue at risk is:

- $(875 - 654)/875 = 0.252$
- that is, 25 per cent of net revenue in the \$750 - \$1000 segment is at risk.

Alternatively, the average bet size in this segment is \$1.337. The fraction of revenue at risk can be calculated by:

- $(0.337/1.337) = 0.252$

Net revenue at risk for the \$750 - \$1000 segment is:

- $\$1\ 500\ 000 \times 0.252 = \$378\ 000$

There will be some loss of revenue from lower throughput classes where some unknown proportion of individual bets exceed \$1. This effect cannot be estimated by these methods.

**Total net revenue at risk for our fictitious venue is:**

- $\$(346\ 000 + 378\ 000) = \$724\ 000$

Therefore, the percentage of revenue at risk is:

- $\$(724\ 000 / 4\ 400\ 000) = 16.4\%$



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## *Appendix B – Questionnaire*

### QUESTION 1:

I go to the club/pub \_\_\_\_\_times a week.

### QUESTION 2: (Please circle most appropriate answer)

When I go to the club/pub I always/usually/rarely play the gaming machines.

### QUESTION 3:

I usually spend \_\_\_\_\_% of my time at the club/pub playing the gaming machines.

1 – 25%

25 – 50%

51 – 75%

75 – 100%

### QUESTION 4:

The changes made to the newly modified gaming machines were not very/moderately/very noticeable.

### QUESTION 5:

I enjoyed playing the newly modified gaming machines more/same/less than the old gaming machines.

QUESTION 6:

Playing the newly modified gaming machines gives me more/same/less enjoyment than spending the same amount of money on other gambling activities (eg. buying lottery tickets or placing a bet).

QUESTION 7:

Playing the newly modified gaming machines gives me more/same/less enjoyment than spending the same amount on other leisure activities (eg. movies, sport etc).

QUESTION 8:

Out of my total weekly entertainment budget, about \_\_\_\_% is spent on gambling (eg. gaming machines, lottery tickets, placing a bet):

1 – 25%          25 – 50%          51 – 75%          75 – 100%

QUESTION 9:

Out of the total amount spent on gambling, \_\_\_\_% is spent on gaming machines:

1 – 25%          25 – 50%          51 – 75%          75 – 100%

QUESTION 10:

Did any of the following changes to gaming machines change your enjoyment of playing:

- |  |                               |
|--|-------------------------------|
| a) taking longer for each play         | (decrease/no effect/increase) |
| b) maximum bet limit                   | (decrease/no effect/increase) |
| c) note acceptors not easily available | (decrease/no effect/increase) |

QUESTION 11:

If any of these changes were made to all gaming machines in all clubs and pubs in NSW would you spend less money on gaming machines in NSW?

YES/NO

If YES which changes would make you spend less:

- |  |        |
|--|--------|
| a) taking longer for each play         | YES/NO |
| b) maximum bet limit                   | YES/NO |
| c) note acceptors not easily available | YES/NO |

OR

- |                     |        |
|---------------------|--------|
| d) all of the above | YES/NO |
|---------------------|--------|

If you answered yes to any or all of the above:

How much less do you think you would spend on gaming machines because of these changes?

1 – 25%      25 – 50%      51 – 75%      75 – 100%

QUESTION 12:

If any one(s) of these changes occurred would you spend less of your total weekly entertainment budget at the pub/club?      YES/NO

If you answered 'NO' go to Question 13. If you answered 'YES' go to Question 14.

QUESTION 13:

If you would still spend the same amount of money in total at the pub/club would you:

- a) spend the same amount on gaming machines and just extend your play time
- b) spend less on gaming machines and more on other forms of gambling and wagering
- c) spend less on gaming machines and more on food and beverages.

OR

QUESTION 14:

If any of these changes occurred to gaming machines I would spend \_\_\_\_% less in total at the club/pub.

1 – 25%          25 – 50%          51 – 75%          75 – 100%

and

If you would spend less at the pub/club this money would mainly be spent on:

- a) other gaming activities offered outside the club/pub (eg. lottery tickets, betting etc.)
- b) other recreational activities (eg. movies, sport etc.)
- c) other.

\*\*\*\*\*

This question is for participants whose club or pub is located near the border.

QUESTION 15:

If any/all of the above changes were made to all gaming machines in NSW would you:

a) continue to play the newly modified gaming machines in NSW

OR

b) cross over the border to play gaming machines which have not been modified.

## Appendix C – Hotel blind trial results

BLIND TRIALS IN HOTELS were conducted on a different basis than those in clubs. Selected hotels hosted only one modified machine. Thus each of seven hotels trialed a different modified machine for comparison with a control machine for a period of one week. Hotel 1 trialed a \$1 max bet machine, Hotel 2 a machine with the slower game speed etc. Again the results with one exception pointed to significantly lower revenue from the modified machines (see table C.1). The exception in these trials was the case of the \$1 max machine which showed an apparent 1 per cent increase in turnover in comparison with the control machine. However, in the venues with machines modified to incorporate the \$1 max bet with slower reel spin or with both of the other changes, there were substantial reductions in turnover compared with the control machine.

### C.1 Blind trials — observed turnover differences between modified and control machines — 7 hotel venues (% differences)

Venue	Modification						
	Max \$1 bet A	Slower reel spin B	Modified note acceptor C	AB	AC	BC	ABC
Hotel 1	+1						
Hotel 2		-39					
Hotel 3			-48				
Hotel 4				-78			
Hotel 5					na		
Hotel 6						-51	
Hotel 7							-44

Note: Results from the hotel hosting the machine type AC (\$1 max bet and \$20 note acceptor) were not available for incorporation

Source: CIE estimates based on Visionads data.

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