
N Gaming machines: some international comparisons

The world gaming machine market is highly complex and segmented. There are a host of different machines in terms of technology, winnings, payout rates and the range of bets and losses. In addition, the regulatory environment in which these machines operate often conditions their accessibility and operating characteristics. This situation parallels other commodities, such as alcohol, where variations in the product (taste, alcohol content) together with different market preferences, cultural norms and regulatory environments create similarly complex world markets.

This appendix presents evidence on this complex world gaming machine market, examines relevant market segments, and seeks to estimate the number of gaming machines. Common gaming machine terms are explained in box N.1.

Box N.1 Gaming machine glossary

AWPs — amusement with prizes machines. Three reel slot machines with ‘skill stops’ at the front of the machines to stop the reels. Most have an initial game that includes an opportunity to proceed to a more complex game.

Club or jackpot machines — similar to AWP’s but with 4 reels and higher stakes and prizes.

Draw card machines — gaming machines on which card games are played, usually blackjack or poker. After the game is started the player must decide whether to keep or discard cards.

Pachinko — Japanese pinball machine. Players turn a handle which shoots small steel balls into a machine. The balls bounce off steel nails and into catchers, or trigger reel spins, which give winners a stream of balls which can be exchanged for non-cash prizes. These prizes can then be swapped for cash at a nearby independent outlet.

Pachislo (or pachisuro) — Japanese slot machine with reels and skill stops.

Pokies — an Australian term for multi-line and/or multi-credit video gaming machines.

Slot machines — gaming machines with three or more reels. Games involve starting the reels spinning and prizes are paid according to the final combinations of pictures on the reels. Reel spins stop automatically after the game is started. Note: some jurisdictions define ‘slot machines’ as all gaming machines (including machines with reels, video poker, blackjack and keno machines).

VLTs — video lottery terminals. VLTs are similar to slot machines in appearance, but give winners a cash value ticket which can be redeemed for cash, have a faster speed of play, and are more accessible.

N.1 Characteristics of machines of relevance to problem gambling

Gaming machines can differ in many ways, including:

- technology (the types of games played on machines and the speed of play);
- the nature of winnings (cash or prizes, maximum limits on prizes, the distribution of wins, the availability of jackpots and progressives);
- payout rates;
- the range of bets and losses (cash or tokens used in play, numbers of lines and credits, maximum play cost);
- accessibility (the number of machines and where they are located, venue and global machine caps); and
- the availability of harm minimisation schemes.

Unfortunately, international empirical evidence on the influence of these factors on problem gambling is not currently available. Such evidence would require measurement of the prevalence of problem gambling for each country using consistent methodology, identification of the causal factors of problem gambling, and statistical analysis using comparable data from each country.

In the absence of systematic international empirical evidence, some reasonable assumptions can be made about the impact of these factors on problem gambling. Take the following example. If two types of gaming machine environments exist:

- one where machines are widely accessible, have bill acceptors, with games that only require the player to push buttons with no skill element, with high numbers of lines and credits so that players can lose large amounts of money on low denomination machines in a short space of time, where wins are credited on the machine and progressive jackpots are available; and
- one where machines are less accessible, with games that require players to choose strategies, with low numbers of lines and credits and a slower speed of play, and wins are automatically cashed out;

then it is reasonable to assume that the former environment will lead to a higher prevalence of problem gambling (see chapters 6–8 and 16).

In reality, the likely prevalence of problem gambling cannot usually be determined so easily — most countries have a mix of both high and low risk factors.

Policy makers in Australia already draw distinctions between different types of machines. For example, ACT hotels cannot operate multi-coin slot machines. In Western Australia, only Burswood casino can operate gaming machines and these must emulate casino games (that is, no ‘pokies’ are allowed).

Available information on the gaming machine environments in Australia, Japan, the United States, Canada, New Zealand and the United Kingdom is briefly summarised in table N.1. The variety of gaming machine environments within the United States is shown in table N.2.

Some comments on international information and sources are provided in box N.2.

Box N.2 Some comments on international information and sources

Detailed information about the complex design of all international gaming machines and regulatory environments is difficult to obtain.

As a result, in this appendix, more in depth information is provided only for selected countries: Japan, the United States, the United Kingdom, Australia, Canada and New Zealand. These countries amount to a large proportion of the world's total gaming machines and information was more readily available on them.

The following sources were used in compiling information:

- submissions to the inquiry (in particular, helpful submissions from Professor Marfels (sub. D222), the Australian Casino Association (sub. D234), the Australian Gaming Machine Manufacturer's Association (sub. D257) and Aristocrat (sub. D266);
- international regulators and government organisations;
- international industry associations and gambling providers;
- internet sites (of gambling providers and players); and
- other sources (including industry journals).

The information elicited from these sources was of variable quality. In particular it was difficult to separate typical characteristics from those representing the market extremes. However, the Commission believes the information presented here is a fair representation of the general gaming machine environment for these countries. Where otherwise, this is noted.

In the future, it would be useful to have a more systematic analysis of machine design and regulatory environment by jurisdiction, involving co-operative work by regulatory agencies.

Table N.1 Australia, Japan, United States, Canada, New Zealand, United Kingdom, 1997-98^{1, 2}

	<i>Australia</i>	<i>Japan</i>
Adult population	13 831 000 ^a	98 957 428 ^j
No. of machines ³	184 526 ^b	3 686 066 pachinko machines and 1 004 642 pachislo machines ^k
Total expenditure (A\$)	\$5.9 billion ^c	\$36.5 billion ^l
Gaming machines per 10 000 adults	133	474
Average weekly earnings (A\$)	\$740 ^d	\$1100 ^m
Expenditure per adult (A\$)	\$420	\$370
Expenditure per machine (A\$)	\$32 000	\$7 880
Number of venues with gaming machines	5866 venues (including clubs, hotels and casinos). ^e	17 418 parlours ⁿ
Range of possible bets per game (local currency and A\$)	Denominations 1c to \$2. Maximum bet in many pubs and clubs is \$10. Up to 10 credits and 9 lines. ^f	Pachinko (Japanese pinball) – minimum of around Y500 (A\$6) for around 100–125 balls (5–6 cents per ball). Prepaid card costs from Y1000–10 000 (A\$12–120). Pachislo – players insert up to three tokens per game (usually 50 tokens for Y1000 (A\$12) or around Y20 (A23c) per token). ^o
Duration of game	All games played by button pushes. Average of 5 seconds per game. ^g	Pachinko – speed of play is 100 balls per minute. Pachislo – players start reels spinning and use three 'skill stop' buttons to stop the reels in a winning combination. ^p
Maximum average loss per hour (A\$)	\$720	\$52 (pachinko)
Other	Can use money to wager. Bill acceptors. ^h	Some parlours display payout data for individual machines. Pachislo is seen as a 'lower stakes game'. ^q
Range of prizes (local currency and A\$)	Cash prizes and progressive jackpots available ⁱ	Pachinko – Balls won from machine are swapped for non-cash prizes such as biscuits. Prizes can be swapped for cash at a nearby independent outlet. Players (indirectly) receive around 3–4 cents per ball. Pachislo machine credits winners. ^r

¹Local currencies converted to 1997-98 Australian dollars (using exchange rates from dX database, RBA 1999). ² Some information is more recent than 1997-98 (this is indicated where possible). ³ Machines are apportioned where this information was available, unfortunately, information was insufficient to apportion into drawcard and reel machines.

Australia — ^a TGC 1999; ^{b, e} ch. 12 (1999 estimate); ^c TGC 1999; ^d appendix J; ^f table 12.3; ^g table 15.1; ^{h, i} ch. 12, ch. 15.

Japan — ^j Population 20 and over (data grouping constraints) US Bureau of the Census 1999b; ^k Heiwa 1998, p. 5; ^l Leisure Development Centre (MITI) 1998 quoted by Costin, R. DFAT, Japan, pers. comm., 20 September 1999; Heiwa 1995, profile; Heiwa 1997, p. 2 ^m Japan Institute of Labour 1999; ⁿ Heiwa 1998, p. 5; ^o Akatsuka, N. DFAT, Japan, pers. comm., 5 October 1999, Fresco-Shinjuku 1999, Hatano 1996, p. 3, Masaru, T. 1999; ^p Schauwecker 1999, Heiwa 1995; ^q Hatano 1996, Heiwa 1998; ^r Fresco-Shinjuku 1999, Akatsuka, N. DFAT, Japan, pers. comm., 5 September 1999, Hatano 1996.

<i>US</i>	<i>Canada</i>	<i>New Zealand</i>	<i>UK</i>
200 426 465 ^a	22 567 492 ^j	2 540 352 ^s	43 934 626 ^{bb}
582 605 ^b	38 000 VLTs and 20 000 slots ^k	14 311 machines outside casinos, 1440 in casinos. ^t	220 000 AWP's, 33 000 jackpot/club machines, 13 200 pinball/pusher/crane grab ^{cc}
\$29.43 billion ^c	\$1.87 billion (VLT only) ^l	\$411 million ^u	\$3.87 billion ^{dd}
29	26	62	59
\$650 ^d	\$540 ^m	\$550 ^v	\$930 ^{ee}
\$150	\$80 (VLT only)	\$160	\$90
\$50 500	\$32 200 (VLT only)	\$26 100	\$14 500
States differ in terms of venues. 203 Indian casinos ^e	Global caps apply in some provinces. VLTs in (or moving to) licensed areas. Slots (and some VLTs) in casinos. ⁿ	Gaming machines in licensed areas and casinos. ^w	Some (low stake) AWP's in cafes and shops. Other machines in licensed venues ^{ff}
Denominations US\$5c to US\$500 (A7c to A\$735), but most are US\$25c (A37c). Multiple coins and lines available, but more limited than Australia. ^f	Slot denominations C\$5c to C\$100 (A5c to A\$103). Maximum bet on VLT is C\$2.50. Multiple line bets available. ^o	Maximum NZ\$2.50 (A\$2.17) bet for machines outside casinos. Casino machines no limit. ^x	Maximum bet 30p (A73c) for AWP's and 50p (A\$1.20) for club or jackpot machines. Machines accept coins from 2p to £1 (A5c to \$2.42). Money inserted cannot be withdrawn, must be played. ^{gg}
Due to lever pull and automatic pay out of winnings, games likely to be slightly longer than Australian games. ^g	Average speed 5 sec. VLTs have faster games, slots have slower. Eg: experienced VLT players can complete games in 2 secs. ^p	Similar to Australian machines. ^y	Initial game can be over quickly, but if the player wins the chance to progress the total game time can be up to a minute or more. ^{hh}
\$705	\$186 (VLT)	\$156 (outside casino)	\$130 (jackpot machine)
States differ. ^h	Bill acceptors ^q	Bill acceptors ^z	No bill acceptors (but industry is seeking this). ⁱⁱ
Progressive jackpots available. Some machines automatically pay out winnings. ⁱ	VLTs and slots credit wins. Progressive jackpots available. For VLTs, payout button gives winners a receipt which is redeemable for cash. ^r	Cash prizes (non casino machines limit of NZ\$2.50 (A\$2.17), casino machines no limit). Wins are credited. Progressive jackpots. ^{aa}	Automatic pay out of wins. No progressive jackpots. AWP's pay up to £15 (A\$36). Club machines pay up to £1000 (A\$ 2417) (casinos), £500 (A\$1209) (bingo clubs), or £250 (A\$604) (other clubs). Crane grab pays soft toy. ^{jj}

^a Population 18 and over US Census Bureau 1999a; ^b sub D257; ^c Commission rough estimate only (underestimate, as this is the result of an addition of 1997 casino slot win from Klatzkin et al (1998) and 1996 VLT expenditure from Dept of Business (Hawaii) (1997, p. 71)); ^d Bureau of Labor Statistics (US) 1999; ^e GAO (US) 1998, p. 4; ^f table N.2; Casino International 1999b. ^j Population 20 and over (data grouping constraints) US Census Bureau 1999b; ^{k, l, n, o, p, q, r} sub. D222, Azmier J., Canada West Foundation, pers. comm. 9 and 10 Nov 1999; Azmier and Smith 1998, McNabb, W., Alberta Gaming and Liquor Commission, Canada, pers. comm., 2 and 4 Nov 1999, Bear Claw Casino 1999, Casino Regina 1999, Casino Windsor 1999, Casino Rama, Casino Niagara 1999, Palace Casino 1999, ^m Statistics Canada 1999. ^s Population 20 and over (data grouping constraints) US Census Bureau 1999b; ^t 1999 rough estimate ^u rough indicative expenditure estimate only (casino machine expenditure is estimated thus: Sky City machine win per day x 363 days x 1440 machines) ^{w, x, y, z, aa}, Osmond, M., Department of Internal Affairs (NZ), pers. comm., 5 and 8 Nov 1999; ^v Statistics New Zealand 1999. ^{bb} Population 20 and over (data grouping constraints) US Census Bureau 1999b; ^{cc} (rough estimate only) ^{dd, ff, gg, hh, ii, jj} White, J. BACTA, pers. comm. 15 and 22 Nov 1999; sub. D222; Kavanaugh, T. Gaming Board for Great Britain, pers. comm., 9 Nov 1999; Lockyer, A., UK Home Office, pers. comm., 29 Oct 1999, Casino International 1999a, Clegg 1999; ^{ee} UK National Statistics Online 1999.

Table N.2 Australia, Indiana, Connecticut, Missouri, Nevada, Colorado, 1997-98.

	<i>Australia^a</i>	<i>Indiana</i>	<i>Connecticut</i>
Adult population	13 831 000	4 381 829 b	2 483 354 h
No. of machines ¹	184 526	15 169 c	8 512 i
Expenditure (\$ local currency)	A\$5.9 billion	US\$1.03 billion d	US\$1.04 billion j
Expenditure per machine (\$ local currency)	A\$32 000	US\$67 800	US\$122 700
No. of venues with gaming machines	5866 venues.	9 riverboats (no Native American casinos). e	2 Native American casinos k
Range of possible bets per game (\$ local currency)	Denominations A1c to A\$2. Maximum bet in many pubs and clubs is A\$10. Up to ten credits and nine lines.	Denominations US5c to US\$100. Almost all (94%) of machines are US\$1 denomination or below, half (48%) are US25c machines. f	Denominations US25c to US\$500. Multi-game video machines in US25c and US\$1 denominations. l
Other (\$ local currency)	Can use money to wager. Bill acceptors.	Must use tokens/credits to wager. Average loss of US\$30 per person per riverboat excursion on slot machines. g	Can use money to wager, most machines have bill acceptors. m

¹ Information was insufficient to apportion into drawcard and reel machines. **a** For references, see table N.1. Indiana — **b** US Bureau of the Census 1999a; **c** IGC 1998, ch. 6; **d** IGC 1998, ch. 6; **e** IGC 1998, GAO (US) 1998, p. 6; **f** IGC 1998, ch. 6; **g** Office of Code Revision IC 4-33-9-11, IGC 1998, ch. 6.

Connecticut — **h** US Bureau of the Census 1999a; **i** Division of Special Revenue 1998, p. 8; **j** Division of Special Revenue 1998 p. 5; **k** Division of Special Revenue 1998; GAO (US) 1998, p. 6; **l** Foxwoods Casino 1999, Mohegan Sun Casino 1999; **m** Mohegan Sun Casino 1999.

<i>Missouri</i>	<i>Nevada^g</i>	<i>Colorado</i>
4 031 943 a	1 279 791 h	2 930 391 n
14 990 b	198 232 i	114 736 o
US\$607 million c	US\$ 5.06 billion j	US\$311 million p
US\$40 600	US\$25 500	US\$2 700

11 riverboats (no Native American casinos) d	2453 licences issued. Venues include casinos, small bars, restaurants and grocery stores. Plus 4 Native American casinos. k	Three towns with 49 casinos. Two Native American casinos. q
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Denominations US5c to US\$100. Almost all (98%) are US\$1 or below, two thirds (66%) are US25c machines. e	Denominations US5c to US\$500. Almost all (95%) are US\$1 or below, half (55%) are US25c denomination. Some have multiple coins and lines. l	Denominations US5c to US\$5 (\$US1c slots introduced in Jan 1999). US\$5 maximum bet r
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Wins are automatically paid out unless credit mode is activated. Must use tokens/credits to wager. Average loss of \$15 per person per excursion on slot machines. f		
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Missouri — **a** US Bureau of the Census 1999a ; **b** MGC 1999c; **c** MGC 1999a; **d** MGC 1999a, GAO (US) 1998, p. 6; **e** MGC 1999b; **f** President Casino 1999, MGC 1999a.

Nevada — **g** Nevada statistics do not include confidential Native American gaming revenue (GAO (US) 1998, p. 46); **h** US Bureau of the Census 1999a; **i** NGCB 1999a, p. 2; **j** NGCB 1999a, p. 3; **k** NGCB 1999a, p. 2, GAO (US) 1998, p. 6; **l** NGCB 1999a, p. 2; MGM Grand 1999, Westward Ho Casino 1999, Casino International 1999b, p. 12.

Colorado — **n** US Bureau of the Census 1999a; **o**, **p** Colorado Division of Gaming 1999b; **q** Colorado Division of Gaming 1999a, pp. 2, 13; **r** Colorado Division of Gaming 1999a, p. 2, 1999b.

The following discussion of gaming machine characteristics is centred around their expected effects on the prevalence of problem gambling. It is important to note that where these characteristics increase the entertainment value of gaming machines, they are also expected to increase the benefits of gambling for the vast majority of gamblers.

Technology

Where technology increases the efficiency by which machines collect money from gamblers — say, by increasing the number of lines and credits and the speed of games and by accepting notes — this can allow some players to spend more than they may have initially intended. For the majority of recreational gamblers this is not a problem. But in a minority of cases, this can lead to problematic behaviour such as loss chasing, which can develop into problem gambling (this is also discussed in chapter 16).

As a result, if such technology has any effect on the prevalence of problem gambling, it is expected to increase its prevalence (industry views on this are presented in the discussion on bets and losses).

Australia

Australian gaming machines are all operated by button push, regardless of the game being played (figure N.1 depicts one type of Australian machine). Gambling on these machines can be continuous — machines accept and pay out cash (so no breaks are required to cash out tokens) and machines credit wins, which can then be cashed out at a button push. Most slot machines have a choice of up to ten credits and nine lines per game, and most video poker machines go up to ten credits. Most modern Australian gaming machines have bill acceptors. The average speed of play in Australian machines is around 5 seconds per game (table 16.1).

United States

Most US slot machines have the option of lever pull and play buttons (figure N.2). All US video poker machines are operated by electronic button push. In terms of lines and credits, US machines appear to generally have less options than Australian machines (Casino International 1999b, p. 12; various casino websites). Some US states allow gambling with tokens only, which puts breaks into play where gamblers can assess their gambling and whether they wish to continue. Additionally, some US machines automatically pay out wins, which also slows down the speed of play (although a credit option is also available).

Figure N.1 **Australian gaming machine**



Data source: Aristocrat 1999 (<http://www.aristocrat.com.au/fmach.htm>, accessed November 1999)

As a result, it appears likely that US machines have a marginally longer average speed of play per game than Australian machines (maybe in the order of around 1 second). Some anecdotal evidence for this exists: an estimate from a players website puts the average speed of play at 7.5 seconds for a video poker game (Kelly 1998).

Figure N.2 **US slot machine**



Source: International Game Technology 1999 (<http://www.igtgame.com/products/>, accessed November 1999)

Canada

Broadly speaking, Canada has two main types of gaming machine — slots and video lottery terminals (VLTs), both of which are similar to US slot machines in appearance. The main differences between the two are:

- VLTs give winners a cash value ticket which can be redeemed for cash, whilst slot machines give cash prizes to winners;
- VLTs have a faster speed of play than slots — once a player becomes adept at operating a VLT machine, a game cycle can be completed in 2 seconds;
- VLTs are more accessible than slots — VLTs are able to be placed in bars and other licensed venues as well as casinos (New Brunswick currently allows VLTs in non age restricted venues although this will be removed by 2000), whilst slots are limited to casinos; and
- VLTs have either ‘touch screen’ technology or buttons, whilst slots generally have a handle and buttons (National Council of Welfare 1996, p. 6; Azmier and Smith 1998, p. 7; McNabb, W., Alberta Gaming and Liquor Commission, Canada, pers. comm., 2 and 4 November 1999; Azmier, J., Canada West Foundation, pers. comm., 9 November 1999).

As a result, the average speed of play for Canadian machines appears to be roughly the same as Australian machines at 5 seconds, although there is a wider range of speeds: VLTs are faster than the average and slots are slower (Azmier and Smith 1998, p. 7; Azmier, J., Canada West Foundation, pers. comm., 9 November 1999; McNabb, W., Alberta Gaming and Liquor Commission, Canada, pers. comm., 2 and 4 November 1999).

Both types of Canadian machines have multiline and multicredit play, and many machines have bill acceptors (see previous sources).

Japan

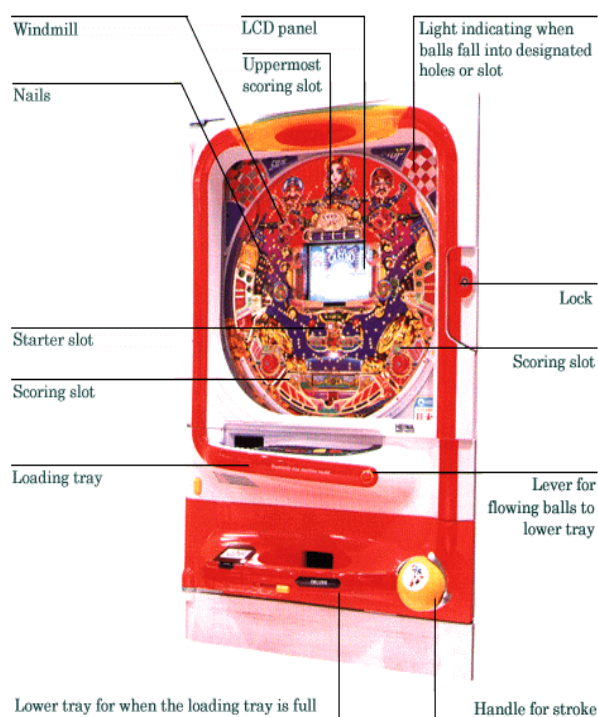
A Japanese pachinko machine is illustrated in figure N.3. Players turn a handle that shoots individual small steel balls into the machine (Heiwa 1995). Two major types of play are possible:

- When a ball lands in one of the catchers situated on the face of the machine, the player is rewarded with more balls.
- When a ball enters a starter slot in the centre of the screen, the centre slot windows begin to spin similarly to a slot machine. If the windows come up

matching (either numbers or pictures) the player wins more balls — typically around 2300, but a large jackpot can pay out up to 10 000 (Fresco-Shinjuku 1999).

The nature of the pachinko game does not appear to enable multiple credits or lines to be played. The average speed of play is 100 balls per minute (Heiwa 1995; Schauwecker 1999).

Figure N.3 Japanese pachinko machine



Data source: Heiwa 1996, p. 4.

Although Japanese pachislo (or pachisuro) machines are electronic and are similar in appearance to US slot machines (figure N.4), a major difference between the two is that pachislo is a low stakes game:

Unlike pachinko, however, which has been criticised for its high-stakes gambling element, pachislo has never become a focus of social concern, since it is a low-stakes game by nature (Heiwa 1998, p. 5).

A pachislo player inserts three tokens (usually Y20 per token) into the machine to start the reels spinning, and tries to stop the reels in the correct formation for a jackpot by using three buttons, or skill stops, located on the front panel of the machine. As a result, it is likely that this results in a slower game than in Australian slot machines.

Figure N.4 **Japanese pachislo machine**



Data source: e-slot.com 1999 (<http://www.e-slot.com/store/sunset.html>)

United Kingdom

Several types of gaming machines operate in the United Kingdom, including amusement with prizes (AWP) machines, all-cash AWP, and jackpot or ‘club’ machines (figures N.5 and N.6). Pinball, pusher and crane grab machines also qualify as gaming machines under UK legislation (Gaming Board for Great Britain 1999, ch. 5).

Most machines have skillstops at the front of the machine to stop the reels, like Japanese pachislo machines (White, J., BACTA, pers. comm., 17 November 1999). AWP machines have three reels and club or jackpot machines have four, and there is generally only one line per game (White, J., BACTA, pers. comm., 15 November 1999). Most machines play an initial game which includes an opportunity to advance to a more complex game. Although the initial game may be over quickly, if the player wins the chance to progress, the total game time can be up a minute or more (Kavanaugh T., Gaming Board for Great Britain, London, pers. comm., 9 November 1999; White, J., BACTA, pers. comm., 15 November 1999).

Currently, UK machines are required to pay out wins automatically and do not accept denominations above £1 coins (A\$2.42) — although proposals to relax these regulations are under preliminary assessment by the UK Home Office (Clegg 1999, p. 40).

As a result, it appears likely that, similar to Japanese pachislo machines, UK gaming machine technology results in longer games than Australian gaming machines.

Figure N.5 UK AWP screen



Data source: Barcrest 1999 (<http://www.barcrest.co.uk/m-htm/setup.htm>)

Figure N.6 UK jackpot machine screen



Data source: JPM International Ltd (<http://www.jpm.co.uk/>).

Winnings

Progressive jackpots are prize pools which accumulate with play and usually must be paid out during a specified period. Machines linked to these types of prizes offer higher rewards than the norm, and hence encourage gamblers to either choose these machines in preference to other machines and/or to spend more time playing them (chapter 16). If they have any effect on the prevalence of problem gambling, they would be expected to increase its prevalence.

Jackpots and progressive prizes are available in Australia, New Zealand, and the United States. No progressive jackpots are allowed in the UK (Clegg 1999, p. 40)

Where machines automatically credit wins, gambling can be fast and continuous. In addition, gamblers are more likely to play through the credits on the machines, and thus increase their losses. As a result of these influences, automatic crediting of wins is likely to increase the prevalence of problem gambling.

Where gamblers must go through a convoluted process in order to receive winnings, this may also increase the likelihood of playing through their winnings. However, for gamblers who do go through the process of cashing in their winnings, their speed of play is slower and the decision to gamble further can be made away from the machine.

Most countries pay cash prizes (or pay tokens that are fairly easily convertible to cash). UK prizes are limited by the type of machine and its location: £5 (A\$12) cash or £8 (A\$19) tokens for traditional AWP, £15 (A\$36) for all-cash AWP, £1000 (A\$2417) for jackpot machines in casinos, £500 (A\$1209) for jackpot machine in bingo clubs, and £250 (A\$604) for jackpot machines in all other clubs. Crane grabs give winners soft toys (Lockyer, A., UK Home Office, pers. comm, 29 October 1999).

Many US machines appear to automatically pay out wins, although a credit option is available. UK machines are required to automatically pay out wins (Clegg 1999, p. 40). Canadian VLTs and Australian gaming machines automatically credit wins. In Australia these credits can be directly converted to cash but in Canadian VLTs a receipt is issued that is redeemable by a cashier (Azmier and Smith 1998).

Japanese pachinko machines give winners a stream of small steel balls, which are then taken to a counter and used as currency to buy prizes. The retail value of each prize is limited — in 1996 the limit was Y10 000 (around A\$116) per prize (Hatano 1996). Prizes can then be taken to a separate outlet which exchanges the prizes for money. Interestingly, while pachinko players pay the equivalent of 5 Australian cents per ball to bet on the machine, winners (indirectly) receive only 3

to 4 cents per ball (Fresco-Shinjuku 1999; Akatsuka, N., Department of Foreign Affairs and Trade, Japan, pers. comm., 5 October 1999).

Payout rates

The payout rate is the average amount won by players as a share of the cumulative amount staked. This rate is critical in determining player losses.

The Australian Gaming Machine Manufacturers Association noted that payout rates are lower outside Australia and that regulation plays an important role:

... the 'return to player' in both unregulated jurisdictions and certain regulated jurisdictions overseas is considerably lower than it is in Australia; the critical point is that in Australia, the return to player is fixed by regulation and is monitored and enforced by regulatory authorities (sub. D257, annexure 3).

While most gaming machines across the world have a payout rate of over 80 per cent, Australian machines do compare favourably, having one of the highest payout rates in the group of identified countries.

US payout rates range more widely than Australian rates, although they appear to converge on average. For example, in Colorado, slot machines must pay out between 80 and 100 per cent (Colorado Division of Gaming 1999, p. 15). However, most pay out around 90 per cent, similar to Australian machines.

Canadian VLTs pay out at a 92 per cent rate, the highest among the identified countries (Azmier and Smith 1998; McNabb, W., Alberta Gaming and Liquor Commission, pers. comm., 2 November 1999).

Payout rates in Japan appear to be slightly lower, at around 80 to 90 per cent (Heiwa 1995, profile).

There are no statutory controls on the payout rates for UK machines, although the Gaming Board for Great Britain has agreed voluntary minima of (in effect) 70 per cent for most machines, and 80 per cent for casino machines with £1000 prizes (Kavanagh, T., Gaming Board for Great Britain, London, pers. comm, 9 November 1999). Industry sources put the range of payout rates from 76–96 per cent depending on location and game design (White, J., BACTA, pers. comm., 15 November 1999; JPM International Ltd. 1999).

Bets and losses

Bets and losses on gaming machines depend on many factors, including maximum bet regulation, technology (including the speed of play and the availability of lines and credits), the nature of winnings, and payout rates.

For example, where the initial cost of play on a gaming machine is low, with only a low amount of credits and lines available, and the speed of play is relatively slow, it would be expected that gamblers using these machines could either not spend more than they initially anticipated, or it would take a long time to lose a large amount of money.

However, where the machine denomination is low, but a high amount of credits and lines are available to gamblers, and the speed of play is high, this could result in gamblers inadvertently losing a large amount of money within a short space of time on a seemingly low value machine.

Thus, if the latter type of environment has any effect on the prevalence of problem gambling, it could be expected to increase its prevalence.

The Australian Gaming Machine Manufacturers Association does not share this view:

AGMMA disagrees with [the] view ... that the ability of a player to spend money more quickly (by selecting a multi-line combination) makes the machine inherently 'riskier' than a machine which a player must play for a longer period to spend the same amount of money ...

[AGMMA believes that]

- the 'return to player' is far more important than the number of combinations that may be chosen in terms of 'risk' assessment ...
- it is entirely up to the player to choose a multi-line combination or to play a machine for a longer period;
- it is not sensible to compare multi-line casino style machines to, say, pachislo machines in Japan because the machines are unique to their respective jurisdictions.

As rigorous empirical evidence on the relative influence of lines and credits and payout rates on problem gambling is not currently available, especially across countries, it is not possible to state with certainty which is the most important. Nevertheless, all relevant factors should be considered when looking at risk to problem gamblers — and the ability of a gambler to lose money more quickly is certainly relevant to risk (technology, the nature of winnings, and the payout rate are relevant in working out how quickly this can happen).

Most Australian gaming machines in pubs and clubs can take bets up to a maximum of \$10 (\$5 in some states and territories) (table 12.3). Machine denominations vary from 2c to \$2 in pubs and clubs, with up to nine lines and ten credits available to gamblers. For a \$10 bet, a speed of play of 5 seconds per game, and a payout rate of 90 per cent, the maximum average loss rate is around \$720 per hour.

Bet limits vary across US states. Machine denominations range from US5c to US\$100, with even the odd US\$500 machine. However, in states where information is available, almost all machines are US\$1 denomination or below, and the single most popular is the US25c machine (NGCB 1999a; IGC 1998, ch. 6; MGC 1999b). Multiple credits and/or lines can usually be played, but are generally more limited than in Australia. However, in the future, US machines may more closely resemble Australian machines:

In Nevada, the multi-coin games are generating higher incomes on the states 1 500 nickel (\$5c) machines. However, executives also say they are considering using them in their dollar and five dollar games (Casino International 1999b).

For a US\$8 bet,¹ with an average speed of 6 seconds per game, and an average payout rate of 90 per cent, the maximum average loss rate is US\$480 (\$A705) per hour.

Some US states have limited bet sizes. In Colorado, a maximum of US\$5 can be placed on any single bet.

Canadian slots have a range of machine denominations similar to US machines. The maximum bet on a VLT is C\$2.50 (Azmier, J., Canada West Foundation, pers. comm., 9 November 1999). For a C\$2.50 bet, an average speed of 4 seconds per VLT game, and an average payout of 92 per cent, the maximum average loss rate is C\$180 (A\$186) per hour.

AWP and all-cash AWP's in the UK have a maximum bet of 30p, and jackpot machines have a bet limit of 50p (Lockyer, A., UK Home Office, pers. comm., 29 October 1999). More complex games and the use of skill stops means that the average speed of play is likely to be slower than Australian games. For a 50p bet, and using the average speed of play for an Australian game of 5 seconds (which is likely to be faster than the more complex UK games) and a payout rate of around 80 per cent, a maximum average loss rate would be around £72 (A\$131) per hour.

¹ As the overwhelming majority of machine denominations in the identified US states are US\$1 or below (with the 25c machine being most popular) and there are usually less options in terms of lines and credits in the US than in Australia, US\$8 was taken to be a rough approximation of a realistic maximum bet. However, higher denominations are possible, but relatively rare.

In Japan, the minimum amount required to play pachinko is ¥500 (A\$6), which buys around 100 balls. At an average speed of play of around 100 balls per minute, not including the time required to exchange balls for prizes and consequently for money, and a payout rate of 85 per cent, the maximum average loss rate is ¥4500 (A\$52) per hour.

On pachinko machines, the Australian Casino Association (sub. D234, p. 5) noted:

Modern pinball style Pachinko machines in Japan are a far cry from the traditional pinball machines of the past – pinballs used in the machines can activate an EGM style screen similar to traditional EGMs and prizes are won depending on what combinations appear on the screen. High value prizes can be won.

Although pachinko machines have developed technologically over the years, the style of play on these machines does keep the maximum average loss rate much lower than Australian gaming machines.

The maximum average loss rate for Japanese pachislo machines is expected to be below that for pachinko.

Accessibility

If gaming machines are more accessible, all other things being equal, this is expected to increase the prevalence of problem gambling (chapter 15).

All the identified countries limit (or intend to limit) access to gaming machines to adult venues, apart from the UK for AWP. These UK machines (limited to 30p bet maximums and maximum £5 wins) are allowed in cafes, fish and chip shops, as well as pubs (Lockyer, A., UK Home Office, pers. comm, 29 October 1999). Other UK machines are less accessible: up to 2 all-cash AWP are allowed per venue (pubs and clubs, betting offices and adult arcades), and a maximum of 3 jackpot machines are allowed in clubs, 4 in bingo halls, and 10 in casinos.

In Australia, gaming machines are limited to licensed venues and casinos, and caps apply in many states and territories (section 12.2). Around 184 526 machines are currently in operation and they are spread across 5866 venues — including clubs and pubs in all states and territories (apart from Western Australia) and all casinos (apart from the ACT).

Similarly, in New Zealand gaming machines are limited to licensed venues and casinos. Non-casino sites have a 18 machine limit (Osmond, M., Department of Internal Affairs (NZ), pers. comm., 5 November 1999)

In Japan, 4 690 708 pachinko and pachislo machines are located in 16 764 parlours, giving an average of 280 machines per parlour (Heiwa 1998, p. 5).

In Canada, accessibility to VLTs is being restricted to adult areas and slots are limited to casinos. In New Brunswick in 1996, VLTs were operating in non-licensed sites such as pool halls, restaurants and bowling alleys (Department of Finance (New Brunswick) 1997, app. b). By the year 2000, New Brunswick will only allow VLTs in licensed premises (Azmier and Smith 1998).

In the identified US states, the notable exception being Nevada, most gaming machines are located in specific destinations such as casinos (box N.3).

Box N.3 Accessibility in some US states

In Indiana and Missouri, gambling is only allowed on licensed riverboat casinos.

In Indiana, gambling can only take place whilst the riverboats are cruising on the river, and during a half hour docking period where passengers can get on or off the boat (Office of Code Revisions 1999, ch. 9). In practice, the riverboats dock for a half hour period every two hours, and most people tend to stay on board for two excursions before disembarking (IGC 1998, chs. 6, 7).

In the US state of Connecticut, slot machines are only available in the two Native American casinos operating in that state (Division of Special Revenue 1998). A large number of machines operate in each casino — 5 495 in Foxwoods Casino and 3017 in the Mohegan Sun Casino (Division of Special Revenue 1998, p. 8).

In South Carolina until recently, video poker was available in convenience stores, bars and restaurants. However, a recent Supreme Court decision outlawing video poker means that accessibility is to be wound back (Plotz 1999).

In Colorado, gambling may only take place in three mountain towns (Black Hawk, Central City and Cripple Creek) and single bets may only go up to US\$5 (Colorado Division of Gaming 1999a, p. 2). In June 1998, 49 casinos were in operation in Colorado (Colorado Division of Gaming 1999a, p. 9). To change the location of gaming in Colorado, to increase the betting limits or to change the types of games allowed would require a change in the Constitutional amendment through a statewide vote of the people. Six initiatives to expand gaming to other locales have appeared on the ballots since 1992 and each of those has been defeated (Colorado Division of Gaming 1999a, p. 2). Two Indian tribes conduct casinos under compacts with the State of Colorado. They are not subject to taxation and are not required to report their revenues to the State. The tribes agreed to conduct limited stakes gaming with US\$5 limits (Colorado Division of Gaming 1999a, p.13).

In contrast to the other identified US states, Nevada's 198 232 gaming machines are located in casinos as well as small bars, grocery stores and restaurants (NGCB 1999a, 1999b; Dunstan 1997, ch. 6). Around 90 per cent of the slot machines in Nevada in September 1998 were operated under 428 casino-type licences, which allow any number of table games and slot machines (NGCB 1999a). The remaining ten per cent were under 2 025 licences which allow only 15 machines or less. On average, there were 421 machines per casino-type licence, and 9 machines per smaller, restricted licence.

N.2 Market segments

As with many other products, the international gaming machine market is complex. Many different types of machines exist within the broad definition of machines used for gaming purposes where the potential return on a single game is greater than the amount risked on that game (sub. D257, annexure 1).

Also, the gaming machine ‘market’ is blurred at the edges. Around 1.5 million Australian households have internet access at home and these computers are potential gaming machines (ch. 18). Studies indicate that few gamblers use the internet at present, although this is expected to increase markedly in the future. Other examples of blurring are the inclusion of crane grabs (which dispense soft toys to winners), and illegal machines. As data was insufficient to make international comparisons on internet and illegal gaming machines, these were excluded from the following discussion of market segments.

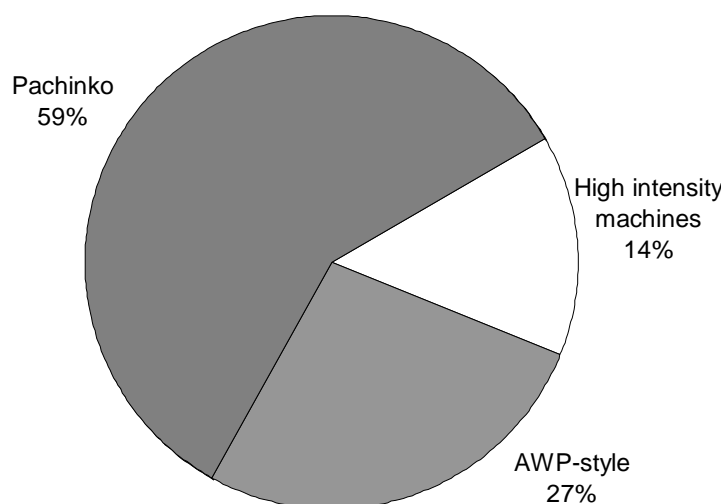
As a result of the broad definition of gaming machines and the blurring at the edges of the market, it is important to ensure that the purpose of market examination is made clear. Otherwise, combining ‘apples and oranges’ can be misleading or even meaningless.

In this appendix, the purpose of examining the international gaming machine market is to inform policy responses to problem gambling.

For machines that lie more squarely within the definition of gaming machines, a subjective analysis of risk factors gives some indicative market segments based on risk for problem gamblers (figure N.7):

- *high intensity machines* — where maximum spending per game and the speed of play are comparatively high (these include Australian machines, US slots and other machines, Canadian slots and VLTs, as well as machines in France, New Zealand and South Africa);
- *AWP-style machines* — where maximum spending per game is low and the speed of play is slower (these include UK AWP and jackpot/club machines, German and Spanish AWP and Japanese pachislo machines); and
- *pachinko and UK crane grab machines* — where the stakes and speed of play are the lowest of all and where the prizes awarded are toys (for crane grabs) and biscuits, cigarettes and magazines for pachinko (although these prizes can be subsequently exchanged for cash).

Figure N.7 World gaming machine market segments^{a,b}



^a Indicative only, excludes roughly 12 per cent of the world's gaming machines on which information was insufficient to apportion into market segments. The addition of these machines may change the relative shares of market segments, or add new market segments. ^b Not including internet or illegal machines.

Data source: table N.3.

The country shares of some of these indicative market segments are shown in table N.3 (some alternative market segments and figures are outlined in box N.4). The share of the world's gaming machines located in Australia is estimated at 20 per cent for high intensity machines. But if other AWP-style machines and Japanese pachinko machines are included, Australia's share of machines falls to 2.6 per cent.

Table N.3 Country shares of selected market segments

	<i>Number of gaming machines^a</i>	<i>High intensity machines (per cent)</i>	<i>AWP-style machines (per cent)</i>	<i>Pachinko (per cent)</i>	<i>Total (per cent)</i>
Australia	184 526	20.4	0.0	0.0	2.6
United States	582 605	64.4	0.0	0.0	8.2
Canada	58 000	6.4	0.0	0.0	0.8
France	53 250	5.9	0.0	0.0	0.7
New Zealand	15 751	1.7	0.0	0.0	0.2
South Africa	11 222	1.2	0.0	0.0	0.2
United Kingdom	266 200	0.0	14.8 ^d	0.4 ^f	3.7
Germany	227 000 ^b	0.0	13.3	0.0	3.2
Spain	220 000 ^b	0.0	12.9	0.0	3.1
Japan	4 690 708 ^c	0.0	58.9 ^e	99.6 ^g	65.8 ^c
Other	822 900	na	na	na	11.5
Total (machines)	7 132 162	100.0	100.0	100.0	100.0

^a Not including illegal or internet machines. ^b AWP-style only. ^c Pachinko and pachinko machines. ^d 253 000 AWP-style (220 000 AWP-style and 33 000 jackpot machines). ^e 1 004 642 pachinko machines. ^f 13 200 UK crane grab, pinball and pusher machines. ^g 3 686 066 pachinko machines. na information was insufficient to apportion into segments. Source: table N.1; sub. D222, p. 6; sub. D257; Rouyer, Ch., Casinos de France, pers. comm., 9 Nov 1999; Bell, A. National Gambling Board of South Africa, pers. comm., 11 Nov 1999; White, J., BACTA, pers. comm., 23 Nov 1999.

Box N.4 Comments on market segments and country shares

Other sources segment the market differently to the Commission. For example, after the Commission's draft report was released, Aristocrat defined the world gaming machine market figures in its 1998 Annual Report as machines of a certain type:

[The figure in] Aristocrat's 1998 annual report ... refers only to *the types of gaming machines Aristocrat produces* in regulated gaming jurisdictions. It is not an estimate of the total number of machines worldwide (sub. D266, p. 2) (emphasis added by Commission).

Australia had 21 per cent of this market segment, as defined by Aristocrat.

This appendix takes a broader approach, identifying the main characteristics of machines in certain countries, and grouping machines into three market segments relevant to risk for problem gambling:

- high intensity machines (including Australian gaming machines, US slots and other machines, Canadian slots and VLTs, as well as machines in France, New Zealand and South Africa);
- AWP-style machines (including UK AWP and jackpot machines, German and Spanish AWP, and Japanese pachislo machines); and
- Japanese pachinko and UK crane grab machines (and the UK pinball and pusher machines).

A feel for the variety of figures available on market segments is given below (figures in *italics* are regional subtotals which add to totals). The Commission drew extensively from these and other sources — in particular, where no further information on a country's gaming machine numbers was available from regulators or industry sources, and information was sufficient to apportion into market segments, this appendix generally used the highest estimate from either Professor Marfels (sub. D222) or AGMMA (sub. D257).

	<i>Aristocrat (Aust-style)</i>	<i>Prof. Marfels (all machines)</i>	<i>AGMMA (all machines)</i>	<i>Commission (all exc. illegal and internet)</i>	<i>Commission (high intensity)</i>
<i>Aust and NZ</i>	183 449	193 000	-	-	-
Australia	170 123	180 000	172 764	184 526	184 526
New Zealand	13 326	13 000	-	15 751	15 751
<i>North America</i>	446 088	554 000	-	-	-
United States	-	496 000	582 605	582 605	582 605
Canada	-	58 000	53 877	58 000	58 000
<i>Europe</i>	58 895	950 000 ^a	-	-	-
France	-	-	53 250	53 250	53 250
UK	-	260 000 ^c	250 000	266 200	-
Germany	-	227 000 ^c	220 593	227 000	-
Spain	-	220 000 ^c	228 877	220 000	-
Italy	-	-	351 400	-	-
<i>Asia</i>	12 314	4 746 000	-	-	-
Japan	-	4 734 000 ^b	4 690 708	4 690 708	-
<i>Africa</i>	12 025	12 000 ^a	-	-	-
South Africa	-	-	64 974	11 222	11 222
<i>South America</i>	85 536	86 000 ^a	-	-	-
Other	-	-	463 114	822 900	-
Total	798 307	6 541 000 ^a	7 132 162	7 132 162	905 354

^a estimate. ^b Pachinko and pachislo machines. ^c AWP only.

Source: subs D222, D234, D257, D266, tables N.1 and N.3.

The gaming environment in countries with high intensity machines also tends to have other characteristics that may be associated with elevated risks for problem gambling — such as higher numbers of credits and lines, progressive jackpots, credited wins and high accessibility. On Australian machines, an article in *Casino International* noted:

The Australian market is based on ‘pokie’ machines, the famed multi-line multipliers that have come to be known all over the world as Australian machines. They are as sophisticated as slot machines get. They have to be: almost all of them are to be found in clubs where repeat play is measured in visits per week rather than visits per year as in resort destinations. And while such machines may be holding a steady 20 per cent of the market in other parts of the world, in Australia they count for just shy of the full 100 per cent (Sorrill 1999, p. 20).

This suggests that Australia has a relatively high concentration of higher risk machines, which — given the large proportion of gambling expenditure directed to gaming machines — may partly explain the apparently higher prevalence of problem gambling in Australia.

Of course, the relevant issue for policy makers is not Australia’s portion of any given market segment of the world gaming machine market, as Clubs Victoria noted:

... it’s quite irrelevant how many of the world’s EGMs are in Australia. What is relevant is how many of the world’s problem gamblers are in Australia, and we could end up with half the worlds EGMs to no detriment if the product was delivered responsibly and so as to minimise harm ...

... the issue is how can the product be delivered in the most beneficial way to the vast majority of those who enjoy it, while minimising the costs to those who don’t (trans., p. 1304).

The relevant issue for Australian policy makers is whether there are regulatory or other measures which can preserve the entertainment value of the machines for recreational gamblers, while lowering the risks for problem gamblers (this is discussed in detail in chapter 16).