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# Mediating markets: Gambling venues, communities and social harm

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## Abstract

Supply-side explanations of gambling behaviour and associated social outcomes have been generally neglected in gambling research efforts. As a consequence, supply structures and their relationships to problem gambling have been poorly understood, although this has not prevented their somewhat questionable translation into regulatory regimes, notably in machine relocation policies. The simplistic assumption behind these initiatives is that problem gambling can be reduced to a linear effect of association between gambling exposure (or supply) and the distribution of gambling opportunities among disadvantaged populations. However, the assumptions contained in this formulation can be shown to be based on either a faulty logic or uncertain and problematic causal sequences. It is argued that this formulation has omitted an important mediating interaction between gambling venues and the wider markets in which they operate. This paper presents an alternate account of the relationship between socio-spatial processes and social outcomes in which the structure, location and uses of gambling venues assume a central position as a mediating factor between supply and demand. The paper then presents a revised conceptual framework of a regulatory area which addresses the complexity of these relationships. Without such consideration of these effects, it is argued that regulatory efforts will be often based on a confused or over-simplistic social logic, one that is unable to reconcile the social outcomes of processes at different geographic scales.

**Key words:** Gambling venues, supply, availability, problem gambling, social harm, destination

## Introduction

This paper was developed from a literature review, conducted for the Department of Justice, Victorian Government, on the potential social impacts of changes in the supply structure of gambling opportunities (Young, Tyler and Lee, 2007). The basic idea forwarded by this brief was that the availability of opportunities, configured through particular styles of gambling venues, may be manipulated to achieve desired social outcomes, in this particular case the reduction of problem gambling. This task explicitly involved an examination of supply-side structures, specifically electronic gambling machine (EGM) venues, and their relationship to social processes and outcomes. As Marshall (2005) points out, the various general explanations for gambling behaviour may be grouped into internal (i.e. processes within the person) and external (i.e. environmental contexts of behaviour) determinants. However, while the bulk of previous gambling research has focussed on internal or demand-side processes, only recently have the environmental and social dimensions (i.e. the supply side) of problem gambling causation been addressed. This relative neglect is difficult to explain given that "concentration, size and number of gambling

facilities, socio-economic characteristics of local populations, type of gambling product, opening hours, ease of access and cultural acceptance...have all been implicated as external determinants influencing gambler behaviour" (Marshall, p.66). This imbalance is unfortunate because gambling policy development would usefully include supply-side influences on behaviour given that regulators and policy makers have significant control over these parameters.

At a macro level the introduction and expansion of commercial gambling has indeed resulted in higher levels of problem gambling (Productivity Commission, 1999), suggesting that many gambling problems may be addressed through a reduction in the availability of gambling opportunities. At its most simplistic, the relationship between gambling supply and demand and social outcome may be represented by the following equation:

$$\text{exposure} + \text{vulnerability} \rightarrow \text{problem gambling}$$

where 'exposure' is a measure of supply, 'vulnerability' indicates the level of demand, problem gambling prevalence is an indicator of social harm, and the arrow is a directional causal link. However, the relationship between supply, demand, and social outcome is by no means either as simple or clear-cut as the above equation suggests (Abbott, 2006). While 'exposure' may represent 'supply' and 'vulnerability' a form of demand, it is argued that the assumptions which underpin their effects on social harm depend on a number of flawed and uncertain causal sequences, which unfortunately have omitted the interaction between gambling venue decisions and the wider markets in which they operate. In its place a socio-spatial framework is developed in which the structure, location, and uses of gambling venues assume a central position. In order to do this, gambling venues are positioned as the central mediating factor between supply and demand. From this venue-centric conceptual position, the exposure/problem gambling equation presented above will be critically examined. This examination will consist of two parts.

The first part will present a critique explaining why 'exposure' in itself is inadequate as a homogenous measure of supply. This will be achieved by reviewing the available literature concerning the relationships between gambling venues and social outcomes. The discussion initially examines how the type of venue, defined and positioned within a typology of gambling sites, influences gambling participation among particular groups. Subsequently, it will explore the role of distance to venue and its relationship to both gambling participation and problem gambling. Together these subsections present an argument that 'exposure' is the result of complex interactions between venue type (i.e. size and product mix) on one hand and spatial location on the other. As a consequence, the general relationship between exposure and participation is challenged by divergent local area relationships between different venues and gambling behaviour.

The second part of the review addresses the 'vulnerability' component of the equation. In particular, it will examine the social contexts of venue location to unravel some of the linkages between venues (i.e. exposure) and the communities which host them (i.e. their levels of vulnerability to social harm). Subsections will cover the relationship between social disadvantage and EGM location, the local-area factors that confound the relationship between exposure and social context, and the characteristics of local populations that affect the relationship between exposure and problem gambling. These subsections will show that the relationship between 'exposure', social 'vulnerability' and 'problem gambling', while evident at the macro scale, breaks down at the local-level area of analysis, if consideration is not given to venue-centric processes. The role of gambling venues and the set of complex socio-spatial relations surrounding

them in determining social outcomes is further highlighted. In order to clarify the complex sets of relationships identified, the paper concludes by positioning venues within a conceptual model that sets out the relationships between structures, processes and social outcomes. The model suggests that a repositioning of gambling venue characteristics at the centre of regulatory strategies will provide the framework for more sensitive approaches to harm minimisation in policy-related research. Indeed, the ultimate purpose of the review is to suggest directions for regulative policy and gambling research which may produce more effective strategies for the minimisation of social harm than those which have been informed so far with rather simplistic and, on the whole, ineffectual models of the determinants of problem gambling behaviour.

### **Gambling Venues in Context : A Typology**

At the fundamental spatial level, gambling venues are seen to mediate the relationship between supply of opportunities and social outcomes. This in itself presents an issue of complexity given the diverse characteristics of venues. The ‘community-based’ category, often used in Australia to describe gambling venues which are not casinos, includes a wide range of venues from small local, ‘convenience’ venues located near supermarkets to significant suburban developments with hundreds of electronic gaming machines (EGMs). Within these venue types is nested further diversity given that the number of EGMs, the clientele, and gambling behaviour vary considerably from venue to venue (Marshall, McMillen, Niemeyer and Doran, 2004; McMillen and Doran, 2006). Therefore, discriminating between venue types under conventional or official nomenclature is problematic as there is considerable confusion about what various venue descriptors mean in different places, and the distinctions are increasingly challenged by technological changes (Austrin and Curtis, 2004).

To circumvent this problem with nomenclature, and to create a structure within which a discussion of venues may be framed, a simple typology of venue may be constructed which positions gambling venue types within two-dimensional space (Table 1). On one hand, venues may be described in terms of their accessibility, defined as the ease, in the sense of both time and distance, with which venues may be visited. This includes distance from normal day to day activities (i.e. work, recreation, shopping) of the venue clientele. Along a second dimension, gambling venues may also be categorised on the basis of their levels of involvement in, or engagement with, the host community. This second dimension refers to the degree of ‘embeddedness’ in (or isolation from) the activities of the host community (e.g. whether the community feels a sense of identification with, or ‘ownership’, of the venue). While the links with local community and spatial location can take many forms and have many possibilities, the typology can nonetheless act as an organising tool for defining the conceptual space in which various venues can be discussed.

**Table 1.** A typology of gambling venues

	<b>Physical Accessibility</b>	
<b>Community Involvement</b>	<i>Low</i>	<i>High</i>
<i>Low</i>	casino resorts	shopping mall parlours, gaming arcades
<i>High</i>	urban casinos	sporting clubs, neighbourhood pubs

The upper left cell describes venues with low physical accessibility and low community involvement. These include the extremes of the socially remote casino-resort destinations (e.g. Las Vegas and Macau). These are tourism-gambling destinations that are large enough (i.e. have enough of a geographic pulling power or range) to attract visitors from surrounding regions and countries. As Gibbs (2000, p.369) points out, these gambling resorts are “not... a form of gambling *per se*, but rather ... a specific type of gambling facility and the accompanying gambling ‘experience’”. At the top of the tree sits Las Vegas, globally positioned “... the dramatic economic success of Las Vegas is part and parcel of the city’s image, reputation, and identity as ‘the planetary gambling capital’” (Raento and Berry, 1999, p.2). Tailored to ‘high rollers’ and vacationers in search of luxury and exclusivity, this is the model for the new mega-resorts. In this sense, the catchment for Las Vegas is global. While Australia does not have any casino resorts of this magnitude, that is with an international catchment, it does have some substantial casinos such as the Melbourne Crown casino - an entertainment complex anchored by a casino modelled on the ‘Forum Shops’ of Caesar’s Palace (Flannigan, 1997).

The cell below describes venues that have low physical accessibility, in that they require effort by most people to visit, but are more involved with their local communities both in terms of the client base and locally-based venue promotions and community engagement. These include smaller scale or ‘urban casinos’ as well as some of the larger sporting club enterprises in Australia. The difference between these and resort casinos is important because of the generation of social outcomes. The basic notion is that venues which recruit clientele outside the local area will have fewer adverse revenue effects on local populations (Peppard, 1995). In short, the destination resort is a ‘net exporter’ of gambling impacts. An urban casino, on the other hand attracts most of its patrons locally with a proportionate local burden of impact (Leiper, 1989; McMillen, 1990; Nichols, 1998; Barron, Staten and Wilshusen, 2002).

The cell to the lower right describes venues that have high community involvement combined with higher accessibility. These venues include local clubs and hotels, venues that are accessible at a local level to most residents of any given area. These are the commonest gambling venues in Australia. However, clubs, unlike casinos, are not-for-profit organisations and have specific membership requirements as well as a set of social benefit objectives that underpin their legitimacy to be major EGM providers (Hing, 2006). Hotels, on the other hand, are purely private enterprises, yet can be heavily socially engaged in terms of community based organisations and activities.

The final cell describes gambling that is not venue based in any distinct way, and includes the ubiquitous opportunities of ‘convenience gambling’ located in shopping malls, newsagents, local arcades and the like. ‘Convenience gambling’ may be seen in many ways as the polar opposite of venue-based gambling. It has a strong locality element, one that connects gambling with environments that people travel through in the course of their daily lives (i.e. to drink, shop, eat etc). In these situations, people do not have to make a pre-meditated decision to gamble or engage in a concerted effort to reach a gambling venue. There are few barriers to consumption, which is largely effortless.

While Australia may not have the sort of convenience gambling evidenced overseas, it does have a form of convenience gambling based on the proliferation of gambling venues, a style of ‘venue-based convenience gambling’. Therefore, of the venue types positioned in Table 1, it is the lower two cells that are of most concern for this review – the ‘urban casinos category’ on one hand and the ‘clubs and hotels’ on the other. The salient point, as Eadington (1998) pointed out, is that different types of venues (i.e. destination resort casinos, urban casinos, and widely dispersed

gaming devices) have differential social impacts. It is to these venue-specific impacts that the review now turns.

## **Venue Characteristics and Social Outcomes**

### *Proximity and Market Appeal*

In terms of venue effects, it is evident from the literature that the type or style of a venue defines and shapes the size and character of its clientele. Barr and Standish (2002), for example, studied the effects of size and location of casinos in South Africa on visitation. A combination of factors was found to predict participation levels including the willingness of people to gamble (which included level and distribution of income); the distance to venue and willingness to travel; the conditions and safety of roads; the range of facilities and their general attractiveness; the social acceptability of gaming; and the presence of competition. This result suggests that market appeal is a negotiation between destination characteristics and local geographies. In a similar vein, a study by Shoemaker and Zemke (2005) found that out of a list of items describing reasons for locals to visit a casino in Las Vegas 'easy drive from where I live' was the most important. This was followed by venue characteristics (i.e. friendly employees, feeling of safety, good place to take out-of-town guests, convenient parking). While these studies both show that at a macro level distance is more important than marketing strategies, the quality of the venue proved to be an important predictor.

This importance of market appeal in relation to proximity was illustrated by Marshall's (2005) study of gambling venues in the Richmond-Tweed area of Australia. Marshall found a positive relationship between density of machines and gambling participation and expenditure, with aggregate venue expenditure sourced largely from local clientele. Marshall (p.76-77) also found an interesting exception in the case of Banora Point, which has higher participation rates than predicted by its machine density. Marshall explained this in the context of the main venue's location adjacent to the main local shopping centre, as well as a range of facilities onsite including a golf course, swimming centre, bowling green, and tennis courts. This finding shows that other factors are important in determining the number of visitors beyond the number of machines. Destinations with an attractive set of extra facilities and a favourable location are likely to increase gambling participation. Thus, the functionality of a venue (i.e. single-purpose or multi-function) appears to be closely related to its market appeal, and hence, gambling participation among certain groups. It is evident from this that exposure is heavily mediated by the functional or facility range of venues.

### *Distance to Venue and Participation*

While the market appeal is important, it tends to mediate socio-spatial structures rather than create them. The primary spatial relation is between venue location and spatial distribution of participation and hence, to a large extent, the distribution of social impacts. The concern with distance to markets is particularly relevant for larger venues that source clientele from a wide catchment. For example, a catchment approach to market modelling of casinos in Louisiana and Mississippi by Fung and Wilkes (1998) used a two hour travel time to delineate the market range of these venues. In general though, casinos are located near large urban populations. In

the words of Davis and Hudman (1998, p.86) "Accessibility is perhaps the most important key in understanding the distribution pattern of Indian gaming - there is a close correlation overall between population distribution and the number of Indian gaming operations in a region." Thus, proximity to large populations accounts for the basic spatial distribution of casinos, and this is likely to hold for other larger venues.

Therefore, it is not surprising that findings which examine the importance of accessibility to product demand permeate the literature. Ali and Thalheimer (1997) explored the relationship between demand for horse-race wagering and transportation costs (including time and money) in New Jersey and found that accessibility was reflected in product demand. Demand to riverboat casinos and racinos (Iowa, Illinois and Missouri) has also been related to accessibility of market to venue (Thalheimer and Ali, 2003, p.914). Further, Garrett and Marsh (2002) found that cross-border shopping for lottery tickets in the US can lead to reduction in lottery revenues (i.e. that competition occurs between jurisdictions), which indicates that the demand for all gambling products has an important spatial component. These studies do not, of course, measure problem gambling, merely the amount wagered. However, this finding does show that proximity, accessibility and demand levels are closely related.

At the more local level of analysis, Marshall et al. (2004) examined the catchments of eight clubs in the Tuggeranong Valley (suburban Canberra). Some spanned large areas, while others were tightly defined. There proved to be no standard distance from venue to market, and catchments were found to have an uneven radius. This indicates that the picture is more complex than a simple linear gravity model approach would suggest. Clubs with extensive catchments were located near areas of community congregation, while clubs with small catchments were located further away, often in suburbs with lower socioeconomic status (Marshall et al., p.98). In addition, patrons were prepared to travel different distances to reach their favourite clubs. Of clubs with extensive catchments (2 from 8) patrons were travelling from up to 20 km away. Other clubs had medium catchments (n=5) with substantial proportion of patrons travelling 5-10km. Only three clubs had tight catchments where patrons travelled less than 3km (Marshall et al. p.101). In terms of accessibility then, the Marshall et al. study suggested that proximity of gaming venues to places of community congregation (e.g. shopping centres) and the location relative to socio-economic disadvantage influence gambler behaviour. These findings tend to support the notion of induced demand, or supply-lead growth in which distance is a key variable. In a similar vein, Marshall's (2005) study of the Richmond-Tweed area of NSW found a strong relationship between distance travelled to gaming venues and expenditure on gambling, in that people who lived closer to venues were bigger spenders. Centres with the greatest per capita concentrations of EGMs also had the highest EGM participation.

In a related, and definitive study of accessibility and gambling behaviour, Baker and Marshall (2005) constructed a space-time model of trips to EGM gaming venues in the Richmond-Tweed. Empirical testing of this model indicated that gambling behaviour was a function of the time spent gambling. Average EGM gamblers spent 40 minutes gambling per session and visit once per fortnight – the average trip distance was 4.24km and the return trip time was 0.5h. The 'involved gamblers' (identified by average expenditure of \$16,653 p.a. on EGMs) spent 104 minutes gambling at 2.9 times per week lived closer to the venue (2.05 km) (Baker and Marshall, p.396-397). If this finding holds elsewhere, the implications are that expanding the number and accessibility of venues increases the propensity for 'involved gambling'. In the opposite sense, reducing the number and accessibility of gambling venues (including reducing opening hours) will decrease the propensity for 'involved gambling'. While this is not a measure of problem

gambling, one could infer a link, as most of the problem gamblers are sourced within this group. Indeed, Marshall (2005) argues that: "While this research did not seek to identify the prevalence of problem gambling in the population, the findings of major geographical variations in the level of gambler activity should serve as an indicator that similar patterns may be evident with regard to problem gamblers". Indeed, the relationship between accessibility and problem gambling is a complex one as the next section will show.

### *Distance to Venue and Problem Gambling*

With the possible exception of casino resort cities, there is convincing evidence that proximity to a casino is associated with an increase in problem gambling. One of the first studies of the affect of distance to venue on problem gambling was conducted in the US by Gerstein, Volberg, Murphy and Toce (1999). This time-series analysis from 1980-1997 of 1,000 communities found that the availability of a casino within 50 miles (compared to 50 to 250 miles) was associated with a doubling in the prevalence of problem gambling. This finding was similar to the difference in the overall level participation in casino gambling, a link between distance and participation that was also found by Spears and Boger (2002). Reinforcing this finding Volberg (2002, cited in Abbott, 2006), found that the four Nevada counties with the most access to casinos had higher problem gambling prevalence rates than those with the least access.

It is equally evident that the introduction of new gambling venues may increase the level of harm among vulnerable groups, including existing problem gamblers. For example, Jacques and Ladouceur (2006) used a longitudinal design to assess the impact of a casino in Hull, Quebec, at 1 year, 2 year and 4 year periods. After one year, gambling activities and amount lost increased in the local area. However, this increase was not maintained at the follow up periods, a finding that was contextualised in terms of the regional exposure model of Shaffer, LaBrie and LaPlante (2004), that allows for social adaptation. A separate study has shown that the introduction of a new casino (at Niagara Falls) impacted on a specific high-risk population (i.e. substance abusers who gambled), increasing problem gambling (measured by the South Oaks Gambling Screen) among this group (Toneatto, Ferguson and Brennan 2003). Similarly, research by Pasternak and Fleming (1999) showed an association between gambling disorders (measured through a patient survey) in Wisconsin and proximity to a casino. On the other hand, Govoni, Frisch, Rupcich and Getty (1998) found an absence of one year effects in rate of problem gambling following the opening of a casino in Ontario, Canada. Thus, while the evidence is inconsistent, it does appear that the introduction of urban casinos can increase the level of problem gambling among local, vulnerable populations, at least in the short to medium term.

In the most comprehensive study of proximity and problem gambling Welte, Wieczorek, Barnes, Tidwell and Hoffman (2004) identified a distance effect in the relationship between casinos in the US and problem gambling, and found that other competing facilities (card rooms, horse or dog tracks) did not moderate this effect. Welte et al. also suggested that only some facilities are problematic, potentially ones that encourage a wide clientele, or clientele which has not been previously exposed. These authors found that the number of casinos in the region did not increase the risk of problem gambling over and above the effect attributable to a single casino. In a similar vein, Adams et al. (2007) found a casino proximity effect on university students in Canada. This study examined gambling and problem gambling by Canadian university students, based on the university (n=4) proximity to a casino. Students of the two universities closest to a



casino manifested more serious problem gambling than students in universities located far from a casino. In fact eighty percent of the students categorised as pathological gamblers were enrolled in universities near to casinos compared to 20% who were not near casinos.

In the Australian context, Delfabbro and LeCouteur (2006, p.158), in commenting on the association between problem gambling and venue proximity, state that: "These correlations suggest that a substantial proportion of problem gamblers appear to gamble very close to where they live, so that (all things being equal) areas with a higher concentration of EGMs will tend to provide greater opportunities for people to gamble, and gamble to excess". A study by KPMG (2000) (reported by Delfabbro and LeCouteur p.158) found that Victorians typically travel only 2.5 kms to gamble on EGMs. However, this assessment is at odds with the work by Marshall et al. (2004) who found varying catchment sizes in suburban Canberra, admittedly an area with a more efficient road network. It is equally unclear if people living close to a venue, and who spend more, are more likely to be problem gamblers. There is some obvious mismatch between the identification of proximity as a risk factor in the total population (in which problem gambling is relatively rare) and the overwhelming presence of proximity to a gambling venue as common characteristic among identified problem gamblers.

While increases in gambling participation at the local level appear to result in increased prevalence in problem gambling, it is apparent that no firm or definitive causal link between the two has been established in the literature, unless mediated by specific features of venue type and operation. Where there are fewer constraints (spatial and temporal) more gambling results, although this is subject to the exposure terms of distance, size and trading hours. The important intervening factor here may be the links between accessibility and the relatively higher participation levels of economically disadvantaged populations. In other words, while proximity to gaming venues may have exposure effects, the strength of this relationship is highly susceptible to contextual variations. Particular social contexts and subpopulations will be most vulnerable to increased levels of exposure, and these need to be identified if the links between venue location and social outcome are to be adequately conceptualised.

## **Social context and venue location**

### *Social Disadvantage and EGM Location in Australia and NZ*

The overseas findings about distance to venue and gambling participation are supported in the results from several Australian studies. There exists an established link between social disadvantage, proximity to venues, and problem gambling. At the state level, the Productivity Commission (1999) conducted an analysis of the relationship between income levels, total EGM spending, and number of EGMs in different areas (Vic, Qld, NSW and SA). The Commission reported a negative and significant relationship between income and the number of EGMs in Victoria, New South Wales and South Australia (Productivity Commission p.10.41). The Commission also found that in Queensland, New South Wales, and South Australia "there is a positive relationship between the number of gaming machines in a location and the amount of money spent on them, so the greater density of gaming machines in low income areas is not necessarily being compensated for by a lower spend per machine" (Productivity Commission, p.10.42). A more recent study by the South Australian Centre for Economic Studies (2005) compared Victoria and South Australia with Western Australia, a jurisdiction that limits EGMs to a 24 hour urban casino with a limit of 1,500 machines. These authors reported an areal association between low incomes and higher EGM

expenditure, as well as a much higher incidence of problem gambling (up to five times) in those two states which allow EGMs in hotels, clubs and other community venues (South Australian Centre for Economic Studies). The evidence from these studies suggests, at least at the broad regional level, a close association between disadvantage and EGM concentration.

A number of other studies have identified a link between EGM density, expenditure and socio-economic status. Several of these have found a positive relationship between EGM concentration and social disadvantage (Marshall, 1999; Marshall and Baker, 2001a; Marshall and Baker, 2002; Productivity Commission, 1999; South Australian Centre for Economic Studies, 2005). In New Zealand, a similar pattern was identified by Wheeler, Rigby and Huriwai (2006) who found that EGMs were disproportionately located in the most deprived areas, with fifty-three percent of machines located in the most deprived thirty-three percent of census area units. In Canada, both Wilson, Gilliland and Ross (2006) and Gilliland and Ross (2005) found the spatial distribution of video lottery terminals (VLTs) in Montreal reflected local patterns of socioeconomic disadvantage.

To understand why this relationship may occur, Marshall and Baker (2002) conducted a comparative study between the Melbourne gaming machine market (in operation since 1992) and the more developed Sydney market, where licensed gaming machine venues had been operating city-wide since 1956. This study found a similar concentration of EGMs in disadvantaged areas in each metropolis, although the markets were characterised by a different evolutionary pattern. Specifically, the Melbourne market moved rapidly from an initial random allocation to one that mirrored the lower-income concentration of Sydney areas. The evidence from this study suggested that the legislated placement of machine caps in Victoria during the 1990s encouraged providers to maximise profits by relocating machines to low income areas, a process that accelerated the concentration in areas of social disadvantage and produced a pattern closely resembling the more mature Sydney market (Marshall and Baker, p.238). Marshall and Baker (2001b) explain the observed patterns in Victoria in term of the interactions of supply and demand in combination with some other influential factors including government policy (restrictions on supply), local political action, ethnic and cultural variations in host areas, and the historical pattern of development.

The relationship between socio-economic location and exposure to gambling opportunities, if it holds consistently over all jurisdictions, has important social wellbeing and policy/regulation implications. In a critique of the social-economy of gambling in Victoria, Livingstone (2001, p.54) wrote:

“The growth of poker machine gambling, its unhindered exploitation of areas of comparative disadvantage .... and the increasing dependence of state government on its revenues will readily occur in a public policy environment where action by government to enhance the material and social wellbeing of the disadvantaged is not a primary consideration.”

In a similar vein, Doughney (2002), commenting on the distribution of EGMs in low socioeconomic status areas in Victoria, pointed to the consequently regressive nature of EGM taxation. Doughney (p.153) argues that: “Income is effectively, very effectively, being redistributed away from low income areas, and its flow back effects are at best marginal”.

Obviously the link between poorer areas, machine density and expenditure has important social justice implications. However, it also has implications for policy in terms of identifying vulnerable areas and regulating gambling supply accordingly. The expression of this idea is

evident in policies of capping machine numbers by socioeconomic resources of a locality, as was implemented in Victoria. Such policies are not necessarily on safe ground however, because the relationship on which they are based fails to consider the role of venues in mediating supply and demand at the local level area of analysis. In other words, they look only at one large scale dimension of the socio-spatial relationship. Such an approach masks important variations at the smaller spatial scale, and are thus unlikely to be effective in harm reduction as the next section will illustrate.

### *Venue Catchments as Social Mediator*

The relationship between low socioeconomic status of areas and local gambling expenditure is not as robust as it may appear. Indeed, the relationship between gambling expenditure and socioeconomic status has been specifically questioned by recent research at the local level. A study by McMillen and Doran (2006) found no consistent spatial correlation between EGM expenditure per hectare and relative socioeconomic disadvantage (as measured by a socio-economic index for areas (SEIFA)) in three separate Victorian study areas – Maribyrnong, Central Melbourne, and greater Geelong. The relationship between EGM expenditure and SEIFA disadvantage was found to vary considerably within the study areas, illustrating a local-level complexity masked by analyses at a broader scale. Other factors apart from socioeconomic status were suggested to explain variation in expenditure patterns. These included location and accessibility to a wide catchment, seasonality, and venue type. McMillen and Doran (p.15), in the case of Maribyrnong, suggest that expenditure patterns could be affected by size and type of venue, location near shopping centres, residential areas or transport corridors, range of other facilities offered, marketing campaigns, opening hours and local strategies to ameliorate gambling impacts. This study illustrated the significant variation from place to place, even at the smallest scale, in the relationships between social context and gambling outcomes. In other words, a range of venue-specific factors may influence the level of social harm to the effect that the spatial relationship between EGM expenditure and social disadvantage is highly variable when analysed at the local level (McMillen and Doran). The findings at a larger scale (i.e. city and region) indeed mask processes and relationships at the smaller scale (i.e. the local area). The paper by McMillen and Doran thus, directly questioned the local-level relevance of the exposure plus vulnerability equals social harm formulation, as well as any regulatory policies based solely upon it.

The main reason for the variation between EGM expenditure and social contexts identified by McMillen and Doran (2006) lies in the fact that some people may travel to particular venues not in their local area. The catchments of venues are varied and this leaves room for attenuation in the relationship between local populations (i.e. vulnerability) and local venues (i.e. exposure). Therefore, it is not always possible to establish a clear link which shows that expenditure is derived from specific local areas of disadvantage. In addition, it is also unclear whether increased expenditure in a venue is due to more people gambling from the local area or increased participation by the current clientele. To illustrate, Hing and Breen (1996) have shown that clubs may have very large, even cross-border catchments, depending upon where they are located. These authors describe the historical ‘pokie tours’ from southern Queensland to Northern New South Wales clubs. These often included a substantial number of interstate visitors (i.e. senior citizens reliant on government benefits). Large catchment areas, caused by the lack of local availability, have been an historical pattern in these regions (Queensland did not license community venues until 1992, the Northern Territory until 1996).

In the Northern Territory no relationship was found between the location of clubs and hotels and the social disadvantage of their local areas (SLAs) (Young et al., 2006). In fact, because of the historical location of hotels and the unique demographic features of this jurisdiction, the relationship was found to be a negative one in that licensed venues were more typically located in the more affluent areas of urban and regional centres. The Northern Territory results did not, however, suggest that wealthier people play EGMs more than poorer people, or that EGM allocation does not target lower socio-economic groups. This is because Northern Territory venues are likely to have wider catchment areas that do not display the tighter relationship between location and clientele found in the southern Australian markets, where gambler proximity to venues is more important. In addition, EGMs were introduced in the Northern Territory into an existing spatial structure of establishments, and venue location may very well depend on the existence of a previous facility. Venues in the Northern Territory are also relatively small and have fewer options for moving machines between them. In other words, patterns of player loss in the Northern Territory appear to be determined by a somewhat different mix of regulatory, geographical and market forces to those found in other major Australian cities. Venue specific factors are more important in the Northern Territory than socio-economic characteristics of the areas in which the venues, and hence the machines, are located.

To untangle the relationships between vulnerability, exposure and venues, more research is required on the characteristics of clientele (i.e., socioeconomic status, location of residence, gambling behaviour, and problem gambling). Unfortunately, although the research reveals a certain amount about the characteristics of machine players generally (Boreham and Dickerson, 1996; Breen, Hing and Weeks, 2002; Hing and Breen, 2001; Hing and Breen, 2002), the volume of research in this area is thin. However, this relationship is central to a harm-reduction context. As Marshall et al. (2004, p.131) concluded "...strategies to minimise the harmful impacts of gambling will, in order to be effective, need to be relevant to the lifestyles of the various subgroups exhibiting higher levels of EGM gambling." For these reasons, the social outcomes generated by specific local linkages between client populations, venues and vulnerability deserve further examination.

### *Social Characteristics of Venue Catchments and Problem Gambling*

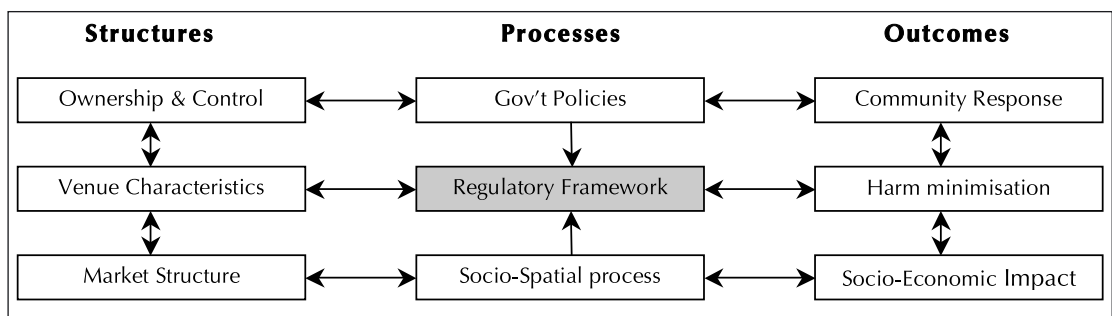
Club patrons have been found to have distinctive gambling profiles (Marshall et al., 2004). Specific clubs, for example, have distinctive EGM patron profiles, particularly in terms of age and income, while others vary in social characteristics to the point of appearing demographically distinct. This pattern is evident even between different types of casino resorts (Kim, Cai and Jung, 2004; Morrison and Braunlich, 1996). A study conducted in Alberta, for example, found local patrons were usually economically less well off, less educated, and tended to gamble for more specifically risk-seeking reasons than tourists (Hinch and Walker, 2005). It follows from this that the incidence of problem gambling will be demographically patterned. Indeed, research in the UK by Fisher (2000) indicated that while casinos could be sustained by regular gamblers with a high prevalence of problem gambling, the harm is concentrated among particular groups. This study also indicated that problem gamblers in casinos were demographically distinct from those found in other gambling forms. Specifically, they were more likely to be above 30 years of age and be among an ethnic minority than other problem gamblers (Fisher). Fisher's study also indicated that as the venue type changes, so will the patrons, and those experiencing problem gambling. As

venues tend to be dependent on regular local customers, these constitute the group that are most likely to experience problem gambling.

This variation may explain the difficulties of identifying risk factors at an individual or local level from proximity alone. While the harmful effects of proximity in the case of larger, specific gambling venues can be stated in general terms, they have been found to vary across different social groups and gambler profiles. As a consequence, the relationship between gambling participation and problem gambling is a complex one that varies across different social contexts. In other words, problem gambling is not simply a function of exposure and vulnerability and demand, but rather an expression of their interaction within a venue context that is socially patterned.

**Venues, Markets and Outcomes: Towards a Model of the Regulatory Arena**

The key finding of this review is that, while mass exposure to gambling opportunities indicates a crude relationship with problem gambling at the jurisdictional level, for the purposes of regulation, such a finding is not very helpful in predicting the local and institutional effects of different supply configurations. The review of the evidence indicates that the relationships between exposure, vulnerability and problem gambling appear to be mediated by a range of supply-side factors including distance from venue (i.e. location relative to other infrastructure and markets (spatial), venue type (i.e., opening hours (temporal), style and attractions (social), marketing (promotional), and product mix (functional/modal). On the demand side, the socioeconomic status of catchment areas and the social and cultural composition of client groups are important, though not as determinant of social harm as the simple equation might suggest. The evidence suggests that these socio-spatial considerations are further mediated by regulatory controls and regimes in different jurisdictions and interact in unpredictable ways with supply factors at the micro level of neighbourhood or suburb (McMillen and Doran, 2006). In the case of the Northern Territory, the equation has also been shown to be deficient at the jurisdictional level. Therefore, while exposure theory suggests a starting point for reducing problem gambling, it has been found to be of limited use in terms of informing regulatory policy. More sophisticated conceptual modelling is required that takes into account gambling venues as the key mediating structures between supply and demand, and the social outcomes associated with their interaction.



**Figure 1.** A conceptual model of structure, process and social outcome

As a first step towards this goal, a conceptual model is proposed in Figure 1 that relates venue characteristics (i.e. the number, facilities and size) to social outcomes (i.e. various measures of harm-minimisation, with particular reference to the prevalence of problem gambling). This framework also takes into account the social processes that mediate this relationship, that is, government policy, regulatory measures, and socio-spatial processes that have demonstrably affected social outcomes. It is based on the interplay between two dimensions running along the columns and down the rows respectively. The columns set out a causal framework for exploring the effects of industry structures on the various kinds of social impact or outcomes of particular venues. The effects of market structure on outcome are therefore shown to be indirect, mediated and shaped by government legislation, regulatory controls and socio-spatial processes such as accessibility, social class participation and time-related patterns of gambling.

The rows of the model set out the levels of analysis in a more spatialised sense. Here venues are positioned between the 'macro' structures of ownership, government policy and community response and the 'micro' structures of the market, patterns of participation and social and economic impact. The whole model therefore pivots around the middle cell on both dimensions (i.e. the cell labelled 'Regulatory Framework'). This model may go some way towards positioning venues and their regulation in a way that may inform both further empirical research as well as any attempts to modify social outcomes by engineering spatial structures. The challenge for future research is to specify how different aspects of this model can inform the development of a regulatory framework for particular types of venues to ensure minimisation of harm, whether communal, personal or socio-economic.

### **Conclusion: A Research Agenda**

In a broad regulatory sense strategies need to be informed by a sound conceptual framework that is supported by empirical evidence for each causal link. This review has argued that existing macro level relationships that do not include venue-level factors are simplistic and ultimately misleading in guiding effective harm minimisation practice. In terms of salient variables, several structural characteristics of venues affect participation and problem gambling levels. These include distance from markets, type of gambling, number of EGMs, range of non-gambling facilities, the structure of catchments, the level of community involvement, and different systems of ownership and control. While the review has pointed to diverse examples of these relationships from the published literature, they all await systematic evaluation across different levels of scale, ranging from neighbourhoods to entire jurisdictions. In addition, it is evident that the composition of host populations, the effects of marketing and promotions, and capacity for monitoring and intervention of problem gambling within different venue types are all factors that may mediate the relationships between spatial structure and outcome, between supply and demand. As a research priority, more attention needs to be directed towards the socio-spatial relationships between venues and their local clienteles. In particular, greater understanding is required of the relationships between venue characteristics in terms of location, type, number of EGMs and range of facilities on one hand, and the location, demographic profile, socio-economic characteristics, gambling behaviour, and problem gambling levels of gamblers on the other. This socio-spatial relationship between venues, gamblers, and host communities constitutes the 'missing-link' in supply-side approaches to gambling research and regulation. These local area level relationships need to be understood more fully before truly effective gambling management frameworks may be designed, implemented and evaluated in different social contexts.

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