

Chapter 1: Introduction and Analytical Approach

1.1 Introduction

Over the past two decades, a significant number of research projects have been undertaken in Australia to obtain greater knowledge concerning the nature of gambling and problem gambling within Australia. Such research has emerged from universities, specialist research centres or marketing firms, industry groups, and from various State and Federal Government organisations or departments. Although the specific focus of research has varied from one study to the next, the majority of studies have been undertaken with a common purpose: namely, to understand how gambling influences the financial, social, cultural and economic well-being of individual Australians and the broader community. A strong reflection of this central theme is to be found, for example, in the detailed inquiry and report undertaken by the Federal Productivity Commission in 1999. The Commission's report provided by far the most comprehensive summary of the Australian gambling industry ever undertaken. Included in the Commission's three-volume report was a comprehensive national review and analysis of available research and statistics as well as its own national survey study to determine the extent of gambling in different States and Territories, and the impacts of gambling on the broad economy, related industries, individuals, families, and communities.

Since 1999, the rate of gambling research funded in Australia has steadily increased. Although some of this is due to a gradual increase in the number of researchers working in the field, it has also been influenced by the establishment of dedicated regulatory bodies at a State and Federal level with a mandated requirement to support and fund gambling research. Moreover, in most States and Territories, there are now Government Departments overseen by a Minister for gambling that support research into the social and economic impacts of gambling. These organisations have forged very productive relationships with numerous university-based gambling researchers and research centres, leading to stronger links between academic gambling research and broader policy and regulatory interests. On the positive side, there is no question that such State and Territory support for research in Australia has facilitated the development of active, varied, and relevant research agendas. However, a downside to these developments is that it becomes increasingly difficult to integrate and compare

research findings from different jurisdictions if there are variations in the focus, methodological approach, and target audience. Accordingly, until the Productivity Commission or similar organisation undertakes another detailed consolidation of more recent research findings (Banks, 2002), it may be difficult for national research to be used effectively because of a lack of awareness of what has been done, how it can be compared, and how it should be assessed in terms of its quality and relevance to different potential users.

In light of this situation, there is therefore a need to conduct detailed national reviews of Australian research to maintain awareness of the current state of knowledge in gambling research for different users who may not have access to individual research findings on an ongoing basis. Such reviews of research can usually be undertaken using three major approaches: (1) *narrative reviews*, (2) *systematic reviews*, and (3) *meta-analyses*. *Narrative reviews* are the most traditional and widely used form of literature review. Such reviews involve the collection of all material relevant to a particular topic, including books, journal articles, book chapters, and other relevant publications. Material is combined into meaningful groupings or topic areas and critically evaluated and described. Narrative reviews usually combine different types of material, including findings drawn from qualitative and quantitative studies, but also other critical reviews. By contrast, a *systematic review* is a focused piece of analysis that is designed to ascertain the strength of certain outcomes or effects (e.g. the effectiveness of a specific drug, treatment or clinical trial). In a *systematic review*, the method of selecting and combining literature is made very explicit and can be replicated by other researchers. Only material (usually peer-reviewed journal articles) that meets certain selection criteria or standards is included in the review. For example, one might only include studies that have good sample sizes, that have used appropriate scientific methods (e.g. have included a control group), or that provide sufficient statistical information to allow the results to be studied in more detail.

Systematic reviews usually include some element of meta-analysis when comparing the results of different studies. *Meta-analysis* involves the use of statistical and mathematical techniques to work out the typical outcome or 'effect' observed across many different studies. An 'effect size' indicates how big the effect is in the study, e.g. how much a clinical group's scores improved as a result of receiving treatment.

Even if different studies use different statistical analyses to present the results (e.g. differences between mean scores or correlations), it is still possible to compare studies. Effect sizes are usually expressed in standard units. Values of around 0.2 are usually considered small, 0.3–0.6 moderate, and 0.7 and greater large. Systematic review and meta-analysis is usually only possible when there are a significant number of methodologically rigorous studies available for consolidation.

Ideally, it would be useful for systematic reviews of existing gambling research to be conducted in Australia to allow one to develop national effect size averages or a systematic process for combining research findings. However, such an enterprise remains largely unfeasible at present due to the limited number of studies relating to specific topics, and the varying methodologies that have been used. For this reason, the present report is based on a narrative approach. Material for this report is adopted from the Australasian Gambling Review (AGR), an annual review supported by the Independent Gambling Authority of South Australia. This review was first completed in 2003 as a review of all relevant gambling research in Australia and New Zealand from 1992–2002 (Delfabbro & LeCouteur, 2006, 2007) and has been updated in two subsequent editions. The most recently published edition covers material from 1992 until the end of June 2006. The AGR provides a detailed coverage of research into the prevalence of gambling; problem gambling and its impacts; the effects of technology on gambling; harm minimisation, consumer protection and regulatory strategies; and economic and regional impact analyses.

The strength of the narrative approach adopted by the AGR is that it allows many different topics relevant to gambling to be combined in the same review. It also does not restrict its analysis to quantitative studies. All types of research are included, on the assumptions that policy makers need to draw upon the best available evidence, and that there is a need to consider both successful and unsuccessful studies in order to determine the best directions for future search.

However, despite providing a comprehensive coverage of existing research studies and their strengths and weaknesses, the AGR remains primarily a critical review of research in its own right rather than an analysis of the underlying value of the research. In other words, the AGR does not specifically examine the extent to which

various research findings might be utilised by potential end users (e.g. policy-makers, treatment providers, regulators, other researchers), and what factors might influence the extent to which research can be used to inform the work of those who read it. Accordingly, to address this issue, Gambling Research Australia commissioned the production of a series of annual reports with an intention to reframe the existing national reviews of gambling research so as to consider this broader perspective. The aim was to examine the extent to which existing knowledge (as consolidated in the AGR) is capable of informing public policy at a national level and informing future research directions. Its focus would be to examine how, and if, research could be utilised by different end users, and whether national reviews such as those provided by the annual AGRs fulfil this objective.

By inference, a central element of this analysis would be to examine the mechanics of the research itself and the various contextual factors (e.g. variations between locations or jurisdictions) that might influence the extent to which findings could be meaningfully compared or consolidated so as to assist in the development of effective policy.

1.2 The Role of Gambling Research Australia

The rationale for this project arises logically from the principal organisational function of Gambling Research Australia (GRA). GRA is an initiative of the Ministerial Council on Gambling (MCG), which is made up of the different Ministers for Gambling from each State and Territory, the Federal Minister for Family and Community Services and a Minister representing the Community and Disability Services Minister's Conference. In July 2004, a National Framework on Problem Gambling was released and this acts as a guide for the activities of the MCG and GRA. The central mission of the national framework is to generate national strategies and research information to minimise the negative consequences of problem gambling to individuals, their families, and the community. To do this, GRA performs several important research functions and works towards several key objectives. These include:

- to increase understanding of the nature and extent of problem gambling in Australia;

- to identify effective intervention strategies in Australia for preventing the development of problem gambling;
- to provide a national clearinghouse for gambling research via its website (www.gamblingresearch.org.au).

As a review project rather than a primary research investigation, the aim of the current project is not necessarily to generate new knowledge concerning the nature and extent of problem gambling. Instead, the aim is to enhance the potential utilisation of knowledge at a national level. Such information may assist in the broader objective of minimising the impact of problem gambling by identifying the existing research information most capable of informing policy, regulation and service delivery. At the same time, it also will assist GRA in its primary role as a clearinghouse for gambling research within Australia.

1.3 Terms of Reference for Current Project

The University of Adelaide was commissioned by Gambling Research Australia to produce three review reports: one each in 2007, 2008, and 2009. Each of these reports was to be informed by the most up-to-date edition of the Australasian Gambling Review, as produced for the Independent Gambling Authority of South Australia on an annual basis. In this report, information already produced by Delfabbro and LeCouteur (2007) in the third edition of their review would be reassessed using established principles of scientific inquiry to provide to GRA:

- advice about the utility of the review and its findings from an inter-jurisdictional policy and Australian public information perspective;
- opinions on how the review results may feed into future research under the research priorities of the National Gambling Research Framework.

This review would include a summary of the different areas of gambling research that have been undertaken, an assessment of each area of the review and its contents in terms of its value to policy and public information, and some analysis of how current research findings might be used to inform specific areas identified in the National Gambling Research Framework (NGRF) (see list of priorities below). The consultants

were asked to focus specifically on current research findings (2003–June 2007) that have emerged within Australia.

1.4 National Gambling Research Framework: Priorities

At the present time, the NGRF has identified six principal research priorities:

1. A national approach to definitions of problem gambling and consistent data collection;
2. Feasibility and consequences of changes to gaming machine operation such as pre-commitment of loss limits, phasing out note-acceptors, impositions of mandatory breaks in play and the impact of linked jackpots;
3. Best approaches to early intervention and prevention to avoid problem gambling;
4. Major study of problem gamblers, including their profile, attitudes, gambling behaviour, and the impact of proposed policy measures on them;
5. Benchmarks and on-going monitoring studies to measure the effectiveness of strategies introduced to reduce the extent and impact of problem gambling, including studies of services that assist problem gamblers;
6. Patterns of gambling, impacts of gambling and strategies for harm reduction in various populations, such as Indigenous, rural, remote or culturally and linguistically diverse communities, young people or older people.

As will be evident, some of these numbered items encompass many different research areas, several of which do not necessarily coincide with the AGR. To address this difficulty, the report has selected material from the AGR and organised it into chapters so as to provide an integrated coverage of specific issues or areas identified above.

1.5 Methodology and Sourcing of Material

All material utilised in this review was obtained from the Delfabbro and LeCouteur (2007) Australasian Gambling Review (3rd Edition) or from primary and secondary research material obtained to complete this review. The AGR sourced material from a variety of sources. The first strategy was a comprehensive search of published articles identified by relevant databases (PsychINFO, Sociofile, Medline, EBSCO host) using the names of all published gambling researchers in Australia and New Zealand (1992–

2007) and keywords (gambling problem, gambling, gamblers, pathological gambling). A second strategy involved a search of university-based research centres, including the Australian Centre for Gambling Research (University of Western Sydney/Australian National University), The Gambling Research Unit (University of Sydney), and National Centre for Training and Education on Addiction (Flinders University), Centre for Economic Studies (University of Adelaide), University of Melbourne Problem Gambling Research Program, Centre for Gambling Education and Research (Southern Cross University), and Australian Institute for Primary Care (LaTrobe University, Victoria). A third source of material was Government websites. This included the Victorian Casino and Gaming Authority/Department of Justice, Victorian Department for Human Services, Productivity Commission, and Australian Gambling Council. A fourth source of information was proceedings from national conferences, including those of the National Association for Gambling Studies and other related conferences. A fifth strategy involved conducting extensive Internet searches using a wide range of keywords that included (amongst others): gambling, regulation, harm minimisation, gaming machines, and policy.

1.6 Analytical Strategy: How the Value of Research is Assessed

A number of important principles were used to assess the quality and utility of Australian gambling research. Some of these principles apply to all research studies, irrespective of the context or potential users, whereas others are specifically relevant to gambling research in Australia and how it can be utilised and compared across different Australian jurisdictions. In the first chapter, four principal areas were identified as having an important influence on the potential utility and quality of research findings.

- (1) *Scientific Quality*: To what extent are findings reliable and valid? This area of analysis examines the degree to which the research satisfies the principal qualities of sound scientific research.
- (2) *Methodological Comparability*: Even with the best scientific rigour, research findings can still be difficult to compare if they have been conducted using different methodologies. This section highlights some of the key aspects of

methodology that can influence the compatibility of different research findings.

- (3) *Contextual Factors*: This section is concerned with a range of contextual factors that are specific to the inter-jurisdictional study of gambling and which can influence the comparability of findings. These include the nature and range of gambling products available in a particular State or Territory, its regulatory environment, as well as the prevailing social and geographical landscape.
- (4) *Utility of Research*: This final section provides a brief examination of the factors that influence the utility of research for different stakeholders. Central to this section is a recognition of the fact that not all research conducted in Australia is necessarily undertaken to meet the needs of every stakeholder. In this section, there is some discussion of the particular needs of specific users of research findings, and how research might be best conducted to maximise its potential value to these different stakeholders.

1.6.1 Scientific Credibility: The Issue of Reliability and Validity

For research to be of value to potential users, it needs to be both reliable and valid. Reliability refers to the extent to which a particular finding or result is consistently obtained when a similar measure, methodology, or strategy is employed to collect the data or generate the results under consideration. By contrast, validity refers to the extent to which data reflect objective reality, or the intentions of the investigator. Validity is usually divided into two types: internal and external. Internal validity refers to the extent to which the results of a study, experiment, or measure (e.g. score on a psychometric scale, behavioural effect, physiological response) reflects what it intended to measure. An internally valid measure of problem gambling, for example, would be one that truly measures problem gambling and not some other construct. Similarly, one might refer to a behavioural measure such as expenditure as a valid indicator of problem gambling if it were found that problem gamblers spent significantly more than other gamblers and if expenditure was a strong predictor of problem gambling status assessed using some independent strategy. In social science research, the internal validity of measures and tests is often inferred by searching for

evidence of specific types of validity, including construct, predictive, or concurrent validity. Does the measure or test appear to capture the concept under investigation (construct validity), does it predict future outcomes (predictive validity), and do scores tend to correlate with other similar, or conceptually related, measures (concurrent validity) (see Neal, Delfabbro, & O'Neil, 2005 for a comprehensive review)?

Internal validity is an essential scientific quality of research and has implications for all potential users of research, but there are several ways in which the internal validity of a study can be compromised. For a start, the measures used in a study might not be well-established or truly reflective of the construct under investigation, e.g. problem gambling. They may yield inconsistent results (an unreliable test is always invalid), not measure the correct quality, or be unable to capture the construct. Alternatively, the results of the study, supposedly related to one factor, might in fact be due to some other unaccounted for, or uncontrolled, factor. For example, as pointed out by Delfabbro (1998) and the Productivity Commission (1999), a common mistake in many survey studies of gambling prevalence is to conduct demographic comparisons of gamblers without controlling for the age of participants. People who are single, looking for work, in rental accommodation, or with lower incomes are often found to have more significant gambling problems. However, since such factors are strongly associated with young people (usually aged 18–24 years) who also tend to experience more significant problems with gambling, one finds that all of the other associations usually disappear when age is statistically controlled.

Alternatively, studies may fail to apply the 'method of difference' in investigating an effect. This problem occurs when qualities or results that are observed in a specific population are assumed to be particular to that population, without any examination of whether similar effects can be obtained in other populations. For example, in studies of women, older people, or Indigenous people, it may be tempting to conclude that depression, isolation, or boredom are characteristically strong predictors of problem gambling in these populations. However, such a conclusion can only be drawn by showing that similar effects are absent or weaker in male, younger, or non-Indigenous samples. In a similar vein, if one is undertaking a clinical trial and it shows significant improvements in outcomes (e.g. a reduction in problem gambling behaviour), it is

important to incorporate a control sample to determine whether such effects might be obtained anyway, just through the passage of time.

The other form of validity that needs to be taken into account is external validity. External validity refers to the extent to which findings from an individual study, experiment, or trial can be generalised to other contexts. Increases in internal validity often occur at the expense of external validity. In very controlled experimental studies where one carefully manipulates specific variables in order to examine very particular effects, internal validity will be high in that the results can be more easily related to a particular cause. However, it may be difficult to generalise the findings to the wider world where multiple influences might have a bearing on how people behave. In gambling research, external validity is threatened when studies are based on situations, tasks, or samples that are not representative of real gambling. For example, studies based on student samples, where participants have relatively little gambling experience, or studies involving artificial tasks involving points rather than money, could not be easily generalised to real-life gambling. The limited external or ecological validity of laboratory gambling tasks (particularly those involving studies of arousal or risk-taking) has been confirmed in studies by Anderson and Brown (1984), although Ladouceur et al. (1991) have shown that allowing players to keep their winnings can enhance the realism of laboratory experiments. To capture both types of validity usually requires field or accurate simulation studies involving real gamblers (or problem gamblers) playing for money which they can keep (as is the case in real-life gambling).

A summary of the purported trade-off between external and internal validity is provided in Table 1.1. As indicated in Table 1.1, the poorest form of research is that which cannot be generalised beyond the context in which the data were collected, and where there are doubts whether the views expressed, or behaviour observed, genuinely reflects the true nature of real-life gambling behaviour. Highly realistic simulations involving gamblers playing for money, or field studies, are possibly the best, along with 'gold-standard' clinical trials that investigate the effectiveness of a particular intervention strategy. Other worthy research designs are described in the top-right and bottom left quadrants, although each of these is relatively stronger in terms of one particular type of validity. Survey or correlational studies (even those

involving longitudinal analyses) involving valid measures usually have good internal validity if people are asked to state attitudes or beliefs, or describe behavioural patterns which they can remember (e.g. how often they gamble), but studies of this nature do not capture behaviour *in situ*. Indeed, such studies but can fall in the upper-left quadrant if self-report methods are used inappropriately to capture behaviours which are not easily gauged through self-report, (e.g. gambling expenditure: see Blaszczynski, Dumlao, & Lange, 1997), or by using methods (e.g. telephone surveys) that do not allow people sufficient time to consider their answers to complex questions (e.g. ‘On what other goods or services would you have spent the money that you currently spend on poker machines?’).

Table 1.1 The Validity of Different Research Designs

	Internal Validity	
	Low	High
Low External Validity	<ul style="list-style-type: none"> • Poorly controlled laboratory research • Surveys with poorly validated measures • Biased self-report studies based on highly selective or unrepresentative samples (e.g. students) 	<ul style="list-style-type: none"> • Well controlled, but artificial laboratory research • Good quality self-report studies based on representative samples or genuine samples of regular/problem gamblers
High External Validity	<ul style="list-style-type: none"> • Good quality observational or interview studies with regular/problem gamblers 	<ul style="list-style-type: none"> • Well designed field or simulation studies involving regular/problem gamblers • Double-blind, control group clinical trials

Such elements of external validity influence the scientific integrity of all gambling research. However, when further examining the value of research from an inter-jurisdictional or policy perspective, there is need to consider a wider range of contextual factors that influence the extent to which one can generalise findings from one jurisdiction to another.

1.6.2 Variations in Research Methodology

Even when research studies are conducted so that their findings are valid and reliable, there are nonetheless several methodological factors that can influence the extent to which findings can be reconciled, combined, or compared across jurisdictions.

(a). Variations in Measures

Although there have, more recently, been attempts to bring greater consistency to Australian gambling research by encouraging the use of consistent measures across different studies (Neal, Delfabbro, & O'Neil, 2005), there is still some variation in the measures of gambling used in different studies. Most current prevalence studies in Australia now utilise the Canadian Problem Gambling Index (CPGI) to measure problem gambling. However, other studies still use other measures such as the South Oaks Gambling Screen (SOGS), Victorian Gambling Screen (VGS), or DSM-IV in their assessments. As a result of these variations, it may not always be possible to draw exact comparisons between problem gamblers identified in different studies. For example, it is known that the classification 'pathological gambler' obtained using the SOGS is a less severe classification than a similar classification obtained using the DSM-IV, or a problem gambler classification obtained using the CPGI.

Additional problems occur when a life-time, as opposed to 'last 12 months' version of the measure is used, or where specific items of the measures are modified or omitted. Moreover, it is possible to administer the SOGS with a Yes/No format as well as one which asks how often the particular behaviour occurred. The 20-item SOGS has also been used with three separate cut-offs: 3–4 for problem gambler, 5+ for probable pathological gambler, and 10+ for problem gambler, depending on the study.

(b) Sampling Method

Studies also differ in their method of sampling. In some studies, problem gamblers are identified using random community surveys. Very large samples are interviewed in order to identify regular gamblers (either weekly or fortnightly) and a small proportion of these are identified via psychometric screening as problem gamblers. In such studies, the number of problem gamblers is relatively small. If only 1% of the population were problem gamblers in a given community, one would need a very large sample to obtain as many as 50 gamblers ($50/0.01 = 5000$). Other studies recruit problem gamblers more selectively by interviewing regular gamblers at venues, or via advertisements in the community. Such methods typically obtain much higher proportions of problem gamblers (10–40%) because regular gamblers have a higher probability of being problem gamblers. Purposive samples of problem gamblers can also be obtained from counselling services.

Both of these methods have their strengths and limitations. Recruiting problem gamblers via random sampling methods is considered best practice because findings can be generalised back to the broader community. However, such methods are very expensive and typically yield only small samples of problem gamblers and may not capture people who spend a lot of time outside their homes. Purposive selection of regular gamblers from venues or from the community is an effective way to select problem gamblers, but it is more difficult to generalise the findings back to the entire community. Such methods are better suited to comparisons of gamblers with varying degrees of risk rather than prevalence because those who respond to advertisements may be systematically different from those who do not. Similarly, while problem gamblers recruited from problem gambling counselling services will unquestionably be genuine problem gamblers, these people are likely to differ in some systematic way from those who do not seek help.

(c) Sample Composition

A related difficulty in many studies of gambling is that sample compositions can differ considerably across studies. Some studies base their results on problem gamblers or regular gamblers, whereas others may use all gamblers, or all people contacted. There are even some studies that have included university students and gamblers within the same group for the purposes of analysis. In studies of youth gambling, there are studies that have confined analyses to 15–17 year olds, others which have examined 13–17 year olds, and others which have combined adolescents and adults in the same sample. In such situations, it becomes very difficult to compare results and to know to which population the results should be generalised.

(d) Type of Research

There are also differences in the type of research approach employed. Some studies have drawn conclusions from quantitative or statistical analyses based on moderate to large samples of gamblers, whereas others have adopted qualitative approaches in which only a relatively small and selective sample of gamblers has been interviewed, e.g. in a focus group context. Although there is inherently no difficulty with either of these approaches, it is important to recognise that the findings obtained using many qualitative methods are more exploratory or indicative rather than conclusive. The

results do not indicate how many, or how strongly, particular results emerged, and such studies often do not allow comparisons between different types of gambler. For these reasons, it is much more difficult to draw meaningful comparisons between studies based on more exploratory and qualitative methodologies, and to make any valid comparisons between these findings and those obtained using formal quantitative sampling techniques.

(e) Data Analysis Methods

A final issue concerns the nature of the data analysis used to examine the results. For results to be compared or consolidated across different studies it is necessary for a certain body of critical information to be made available. This includes the sample size, response rates, mean and standard deviation, and results from relevant statistical tests. Without this information, it is not possible to determine the relative size of effects, or conduct any more formal statistical tests. Unfortunately, not all reports contain this information. Moreover, there are situations where important or relevant analyses are absent from the report (e.g. a failure to report gender differences, or to consider the confounding effect of a particular variable) so that it is not possible to draw any meaningful or complete conclusions until further data analysis is conducted.

(f) Primary Data Collection vs. Modelling Approaches

In most studies conducted within the major social sciences (e.g. psychology or psychiatry), conclusions are usually based on primary data collected specifically for the purposes of the investigation. Theories, hypotheses or predictions are developed and a methodology is developed to collect relevant data that is capable of investigating, confirming, or disconfirming these conjectures. For example, if one wished to examine the relationship between problem gambling and another construct (e.g. suicidality or substance abuse), validated measures of problem gambling, suicidality and substance abuse would be developed or utilised from other studies. Assuming that the measures were indeed sound, it would be possible to determine the prevalence of all of these constructs or phenomena and the relationships between them based on the data collected from groups of individuals. Such an approach assumes complete information on all the constructs being investigated.

In contrast to this type of research are economic or econometric investigations that are more strongly reliant on archival or secondary sources of information. In economic research, it is often not possible to collect primary data on many phenomena because such information is either not available or only exists in aggregate form. Economists therefore have to estimate or make assumptions about the information that is not available for individuals, and make extrapolations using data obtained at a higher level (e.g. for regions, cities, or suburbs). Such analysis is often referred to as research, but is often more akin to modelling in that no new data is usually being generated. Instead, the aim is to examine the relationship between key variables and to infer the likely value of other variables using statistics. Examples of this type of work include estimates of the prevalence of problem gambling based on income and expenditure, or estimates of the economic and social impacts of gambling on certain jurisdictions.

Although comparisons can be made between models developed for different regions if the methodology remains the same, the analysis is very much subject to the quality and availability of archival data sources, which may or may not exist. Moreover, the findings can only be considered estimates because of the necessity to make many assumptions about the likely range of values for variables that were not available, or were not collected from individuals, as part of the research.

These very substantial differences between the methods often utilised in economic research and other disciplines in the social sciences also create some difficulties in being able to compare findings relating to a similar topic, but which have been collected using different disciplinary approaches.

1.6.3 Contextual Factors in the Inter-jurisdictional Comparison of Findings

No two jurisdictions in Australia are entirely alike. They differ to varying degrees in terms of the nature of the gambling industry, the regulatory framework governing the operation of the industry, the type of features or games available in venues, and the type of venues (size, number of machines that are allowed). Moreover, different States vary in terms of their geographical and demographic characteristics. For example, in some States, there are a number of major regional centres so that it is possible to examine specific nodes or concentrations of gambling, whereas other

States have high concentrations of gambling only in the major metropolitan areas. Similarly, as will be documented below, some States and Territories have higher concentrations of Indigenous people, or people from culturally and linguistically diverse populations, often living in very remote locations so that they are never, or seldom, captured by conventional research studies.

Any or all of these factors can play a role in limiting the extent to which findings obtained in one State or Territory can be translated to other jurisdictions. However, such variations can, in some circumstances, work in favour of researchers by allowing useful comparisons between jurisdictions that differ in terms of the availability or accessibility of gambling. For example, if a particular form of gambling were available in one location, but not in another, it would be possible to conduct a natural ‘experiment’ to examine the differential effects of this difference, e.g. in terms of its effects on gambling expenditure, social and economic impacts, or the prevalence of problem gambling. To do so would, of course, require researchers to control for other factors that might potentially influence the differences between the two areas (e.g. demographics, population size).

(a) Variability in the Legalisation of Different Forms of Gambling

Almost every major form of gambling is available in each Australian State and Territory, except that Western Australia does not have Keno or electronic gaming machines in its clubs and hotels. For this reason, it is generally possible to examine the prevalence of various forms of gambling and problem gambling across every State and Territory, although it would be expected that expenditure on EGMs, overall gambling expenditure, and problem gambling in WA would always be lower than elsewhere because of the confinement of EGMs to the central Burswood Casino in Perth. WA therefore provides a natural comparison point, or control, against which one can compare the impacts of club and hotel-based EGMs. Similarly, South Australia provides a natural comparison point for any analyses involving the effects on note acceptors on gaming machines because such devices are not permitted in that State. Another example is Tasmania, where ATMs are not permitted in clubs and hotels. Such venues could be compared with other similar venues in Australia where ATMs are allowed.

(b) Metropolitan vs. Regional and Remote Comparisons

A similar issue applies to comparisons between larger metropolitan and regional areas. For example, in Australia, casinos are only located in medium to large metropolitan areas, so that the range of gambling forms available in regional and remote areas is usually more limited. As a result, it becomes somewhat meaningless or misleading to compare the prevalence of casino gambling between regional and metropolitan areas, or between jurisdictions with varying degrees of access to these types of gambling. For example, in Tasmania and the Northern Territory, casinos are located in both major urban locations (Hobart and Launceston, Darwin and Alice Springs) whereas in Victoria, South Australia, New South Wales, and Western Australia, major regional cities do not have their own casinos. This means that any comparison of the gambling patterns observed across jurisdictions will need to take into account the fact that a greater proportion of the population in some States or Territories have access to casino gambling than in others.

(c) Variations in Gambling Features

Although there may be considerable similarity in the types of gambling available in different jurisdictions, there are some differences in terms of the specific nature and form of the activities. For example, as documented by the Australian Institute for Primary Care (AIPC) in an extensive review of Australian gaming technology, jurisdictions differ in terms of the availability of certain gaming machine features. Note acceptors are permitted on gaming machines in almost every State and Territory, except South Australia. There are also variations in the maximum prizes available on machines. In South Australian clubs and hotels, the largest prize that can usually be won on a gaming machine is \$10,000, whereas some States allow linked jackpots and progressive prizes that pay out many hundreds of thousands of dollars. In Queensland, the maximum bet on clubs and hotel-based machines is \$5, whereas it is usually \$10 in other States and Territories. These variations, most notably the absence of note-acceptors in South Australia, can create some challenges in generalising the findings of studies conducted in other States or Territories to South Australia, and vice versa. Any significant findings relating to the potential benefits of modifying or removing note-acceptors would have little relevance for South Australia.

(c) Venue size

A further factor that can influence the ability to generalise findings from one jurisdiction to another is the size of venues. Clubs and casinos differ considerably in size across the nation. In South Australia and Tasmania venues are restricted to a maximum of only 40 EGMs, whereas Victoria can have 105 per venue, and Queensland 280. In the Australian Capital Territory and New South Wales, clubs can have an almost unlimited number subject to an overall State-wide limit (Australian Gaming Council, 2006). Not surprisingly, larger venues tend to have much larger floor-space, staffing numbers, and turnover compared with smaller venues. Such differences in size can have a significant influence on the nature of gambling activity at the venues. Larger venues may be better able to afford newer machines, have a greater number of progressive or linked jackpot machines and a greater capacity to develop and implement staff training policies relating to responsible gambling, but may find it difficult to keep track of the activity of individual patrons on the gaming floor.

(d) Venue Distribution/Historical Location

Jurisdictions also differ in terms of the historical location of venues. In some States, such as South Australia, EGMs licences were issued to hotels and clubs which were historically located in specific locations. As a result, any correspondence that might appear to exist between certain demographic characteristics of local areas and the density of EGMs is, to some degree, coincidental. By contrast, in Victoria it has been possible until recently for Tabcorp and Tattersalls, the duopoly that own the EGM industry in that State, to base the location of machines more strategically. Machines can be located in areas where they are proving to be most lucrative, whereas in South Australia the machines follow the venues rather than potentially profitable population areas. Such differences mean that distributional analyses of EGM numbers undertaken in States such as Victoria and South Australia must be compared with caution. It is easier, for example, to argue that operators concentrate venues and EGMs in certain areas of Victoria because of their profitability, but more difficult to argue this in South Australia because many hotels have been in the same location for decades.

(e) Permissible activities

In addition to differences in the types of gambling and machine features, there may also be differences in the range of activities that are permissible according to

legislation. Not all jurisdictions (e.g. South Australia), for example, allow Autoplay features on Australian machines, and many do not allow players to gamble on more than one machine. Many jurisdictions do not allow cheques to be cashed at venues, or lines of credit to be extended to patrons. Thus, if one is conducting research into the aspects of venue operation that might influence problem gambling, one might not be able to generalise findings to other jurisdictions where such actions are strictly prohibited and therefore more difficult to perform.

(f) Codes of Practice/Regulatory Framework

States and Territories also differ in terms of legislation relating to responsible gambling and appropriate codes of practice for industry. As reviewed in some detail by Delfabbro, Nevile and McMillen (2006) and Delfabbro and LeCouteur (2007), some jurisdictions (e.g. South Australia, the Australian Capital Territory and Northern Territory) impose mandatory codes of practice that are enforced by legislation. These codes require gambling providers to conduct their business in a specified way, which usually includes a requirement that staff undergo responsible gambling training; that staff take some active role in assisting problem gamblers in venues; and that certain information about the product and help services is made available on site. Other states such as Victoria, New South Wales, Tasmania and Western Australia operate under voluntary or industry codes that are not subject to legislation, although staff in both Tasmania and New South Wales are required to undergo compulsory training. Queensland operates under a co-regulatory system in which appropriate responsible gambling measures are negotiated between industry groups, the non-Government sector and Government and then subjected to periodic audit and review.

These differences in responsible gambling provisions have several implications. The first implication is that jurisdictions differ in terms of the extent to which the Government or regulatory bodies can enforce compliance with guidelines, and make changes to responsible gambling provisions. Mandatory codes can be altered by the regulator through legislative changes and then applied to the whole of industry, whereas voluntary codes will only change on the instigation of industry, with the co-operation of members of peak industry bodies. A further issue is that industry codes will also only be effective if all gambling providers are members of the relevant peak industry body. Compliance with voluntary codes will often be more variable, so that it

may be more difficult to generalise the findings based on one set of providers to the whole industry in that jurisdiction.

These factors have relevance to policy makers and researchers at a national level. If one jurisdiction, for example, develops a particular responsible gambling measure that proves to be highly effective, it may be easier to observe the effectiveness of the measure in jurisdictions with mandatory codes because all industry groups are required to comply with the measure. If a similar measure were attempted elsewhere where no similar code existed, there is less guarantee that the industry would (a) support the measure, (b) enforce it, and (c) ensure that all members applied it consistently.

(g) Geographical Factors

Differences in the social and physical geography of different States and Territories can also have a significant impact on the findings and implications arising from gambling research. A number of studies have considered models for service delivery based on the development of specialist problem gambling treatment services, largely based in metropolitan regions. Such findings are likely to have little bearing on the experiences of people living in rural and remote locations (e.g. far north Queensland, or northern South Australia).

There are also variations in urban geography that need to be taken into account when attempting to translate research from one metropolitan area to the next. Although it might be possible to study gambling accessibility using similar methodologies in different parts of Australia, some cities differ from others in quite significant ways. For example, Canberra differs from other capital cities in that it is based around a series of urban nodes rather than a continuous urban sprawl as is the case in other cities. In contrast with a city such as Adelaide, which has smaller clubs and hotels located in each of its districts, Canberra has a smaller number of very large membership-based clubs located in particular urban nodes. Thus, although most patrons may come from local areas, there may also be a tendency for venues to be seen as destinations for gamblers living in other areas of Canberra. It may, therefore, be more difficult to draw clear associations between the residential location of patrons and the location of gambling venues.

1.6.4 Enhancing the Utility of Research

Although many different stakeholders make use of research findings, it is also the case that each has a particular focus or interest in the research. Those issues or considerations that might be important for one stakeholder may not necessarily be a principal consideration for another. Thus, it is useful to reflect on the principal needs of different potential users of gambling research and how research might be best designed so as to be of greatest utility to each of them.

(a) Researchers

For researchers, the quality of scientific information is assessed in terms of three principal qualities: the quality of the research, the contribution to knowledge, and the replicability of findings. The first of these, research quality, refers to the extent to which the research adheres to the principles of validity and reliability described above, but also to the extent to which it influences other research activity. The degree of influence is often referred to as ‘impact’ and is reflected in the quality of the journal that publishes the paper, the number of times the article is cited or referred to by other authors, and how much it influences the work undertaken by others. The second term, contribution to knowledge, refers to the extent to which the research builds on, or advances, the ideas of others. Research that merely replicates findings that have been obtained many times before is generally regarded as less valuable than research that provides new insights, uses novel methodologies, or provides new theoretical understanding of ideas. Some of this research is considered ‘pure research’ in that it is designed to enhance the theoretical or abstract status of knowledge, whereas other studies (often termed ‘applied’) are designed to generate findings that have some practical implication for the outside world. The final term, replicability, refers to the consistency of the research methodology used to generate the findings. Good scientific practice arises from the use of consistent methodologies which can be replicated by researchers elsewhere in the world, and which are written up and presented in such a way as to make this possible.

(b) Policy-Makers

For policy-makers, it is also important that decisions are based on valid and reliable research. However, a much greater emphasis is placed on the external validity of findings; in particular the extent to which they can be used to guide decision-making

at a broader level. Policy-makers are less interested in theories, abstract findings, or studies that merely contribute to academic knowledge for its own sake. Instead, the principal interest lies in obtaining information that can be used to determine the nature and extent of gambling problems in the community, e.g. How many people are affected? Who is most at risk? How many and what type of services are required to provide people with assistance? In what areas should such services be provided? What sort of interventions, regulations or changes should be brought about to assist people with gambling problems? Answers to these questions may come from large-scale prevalence studies, social and economic impact studies, geographical analyses, or community attitude surveys. In many cases, these studies may be nothing more than replications of similar work that has been undertaken in other jurisdictions. However, for this work to be useful, it must be representative of the different population groups that may be affected by gambling, and be of a sufficient scale to allow accurate estimates of the prevalence of problem gambling and its impacts.

(c) Counsellors and Service Providers

The needs of service providers are generally quite similar to policy-makers in that funding for services is often based on recognition of the broad nature of the problem as it exists in society. However, for findings to be useful to service providers, it is important that samples be representative of the types of people who are likely to seek assistance at agencies. Academic research that merely focuses on regular gamblers, students, or others who seldom gamble is of less use to counsellors. At the same time, service providers have a strong interest in research findings that provide insights into the social, psychological and cultural factors that give rise to gambling problems. Any theory or research study that provides insights into the causes of problem gambling may have important implications for the nature of treatments or interventions. For example, as will be described later in this report, many counsellors in Australia employ methods described from cognitive theory. The finding, for example, that problem gamblers hold more irrational views of gambling than others who gamble has led to the development of interventions involving the presentation of factual information relating to gambling odds, as well as information about biases, fallacies, and superstitious beliefs.

(d) Regulators

All of the above considerations are also relevant to regulators. As with policy-makers, regulatory organisations require research findings that can be generalised to a diverse range of population groups, and which are practical and useful for decision-making. Gambling regulators are concerned with the nature and conduct of the industry and how this influences the well-being of the community. To what extent does the nature of gambling products, their availability, as well as the way they are provided to consumers affect gamblers and those around them? To answer these questions, regulators are interested in research that shows how specific decisions (e.g. changes in the nature or availability of gambling products) influence gambling behaviour and the related social and economic impacts. Regulators have to maintain a non-partisan position that takes into account the needs of different stakeholders, including gamblers, the industry, and service providers. Research therefore needs to be balanced. It should take into account the role of different gambling providers, provide insights into the specific impacts on problem gamblers, but also examine how policies, regulations, and industry practices influence all gamblers. Not all industry practices necessarily affect all gamblers or the industry in a consistent way. Some policies may reduce problem gambling, but also be excessively costly to industry, or significantly reduce the 'consumer value' of gambling to other patrons who may have no problems with their gambling. Thus, regulators are interested in findings that accommodate multiple perspectives, examine the effects of policies on different types of gambler, and provide specific guidance concerning the appropriate regulatory response. Comparative studies undertaken either before or after a change is introduced, or which allow comparisons across jurisdictions with different industry and regulatory frameworks, are considered particularly valuable because they allow the effects of variations in industry or regulatory activity to be compared.

1.7 Structure of this Report and Research Areas Considered

In this report, the analytical framework described above will be applied wherever appropriate to Australian gambling research as summarised in the Australasian review provided by Delfabbro and LeCouteur (2007), with a particular emphasis given to empirical studies that have appeared in the period 2003–2007. Less emphasis will be given to discussion papers and reviews, and attempts will be made to limit replication of material provided in recent GRA reviews (e.g. on codes on practice, responsible gambling principles, and the identification of problem gamblers) (see Allcock et al.,

2002; Delfabbro, McMillen, & Nevile, 2006; McMillen, 2006; McMillen & Toms, 1997; McMillen & Doherty, 1999, 2001; McMillen & Martin, 2001; McMillen, Doherty & Laker, 2001).

The analysis will be divided into several research categories based on the original ordering of material in the Australasian review, but with reference to material that is directly relevant to the National Research Priorities:

- **Chapter 2:** The prevalence of gambling and problem gambling in the general population and within specific population groups, including young and older people, Indigenous and culturally and linguistically diverse populations (Research Priority 1 and 6)
- **Chapter 3:** The characteristics of problem gamblers (demographics, behaviour, attitudes), including the impacts of their problem on them and the broader community and theories used to explain problem gambling (Research Priority 4)
- **Chapter 4:** EGM technology and its effects on gambling and problem gambling (Research Priority 2)
- **Chapter 5:** Early intervention strategies and help-seeking behaviour (Research Priority 3); The nature of interventions and services and their effectiveness in reducing problem gambling (Research Priority 5)
- **Chapter 6:** Economic, social and geographical impact studies (Research Priorities 3 and 4).

A final chapter (Chapter 7) will then consider the extent to which the existing research base can be used to inform the current National Research Priorities. It will examine what information is currently available in relation to each identified area of research, and to what extent this material is capable of informing these issues at a national or inter-jurisdictional level. Based on a review of the current available level of

knowledge, the report will then examine: (a) the nature and range of issues that need to be taken into account in designing and selecting suitable projects to address the National Research Priorities and (b) how future research projects might be designed so as to be scientifically credible, comparable across jurisdictions, and useful to different stakeholders within each of these identified areas.