



# The social costs of gambling harms in the Northern Territory in 2018

August 2021





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**Menzies School of Health Research**

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## **PREFACE**

This report was commissioned by the Northern Territory Government. It was prepared as a partnership between Menzies School of Health Research and the South Australian Centre for Economic Studies based at the University of Adelaide.

The report was prepared by:

- Mr Steve Whetton, South Australian Centre for Economic Studies, University of Adelaide
- Dr Matthew Stevens, Menzies School of Health Research
- Dr Tania Dey, South Australian Centre for Economic Studies, University of Adelaide
- Dr Genevieve Knight, South Australian Centre for Economic Studies, University of Adelaide
- A/Professor Michael O'Neil, South Australian Centre for Economic Studies, University of Adelaide

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The staff of community organisations providing support to gamblers, and broader financial counselling services who participated in interviews and seminars to discuss the nature and scale of gambling related harms in the NT.

The staff of the NT Department of The Attorney-General and Justice who participated in discussions around the regulatory framework for gambling and policies introduced to ameliorate harms.

The research team of the 2018 Prevalence Survey on which this study draws:

- Dr Matthew Stevens, Senior Research Fellow, Menzies School of Health Research
- Dr Mal Flack, School of Psychological & Clinical Sciences, Charles Darwin University
- Dr Himanshu Gupta, Research Fellow, Menzies School of Health Research

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The research team do not have any conflicts of interest to declare.

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## ACRONYMS

ABS	Australian Bureau of Statistics
AIHW	Australian Institute of Health and Welfare
BITRE	Bureau of Infrastructure Transport and Regional Economics
DAGJ	NT Department of Attorney-General and Justice
DOH	NT Department of Health
Menzies	Menzies School of Health Research
NPV	Net Present Value
NT	Northern Territory
NTG	Northern Territory Government
SACES	South Australian Centre for Economic Studies



## EXECUTIVE SUMMARY

Gambling is a recreational activity enjoyed by many adults in the Northern Territory. The most recent study into the prevalence of gambling in the NT found that 72 per cent of NT adults had engaged in at least one type of gambling over 2018 (Stevens, Gupta and Flack, 2020). The most common forms of gambling were lotteries, raffles/sweeps, and keno.

Whilst a majority of those who gamble can do so without risk there are some gamblers who experience harms from gambling, and whose gambling related behaviours cause harm to others.

This study draws on the 2018 prevalence study to identify the harms arising from at-risk gamblers own gambling, and the harms gambling causes to others, and to value these harms where possible.

Most, but not all of the harms from gambling arise from individuals experiencing problem gambling.

In 2018, 1.4 per cent of the population of the NT aged 18 and older were classified as problem gamblers. This is almost 2,500 Northern Territorians whose gambling risk is severe enough to be classified as problem gambling. A further 3.6 per cent of the NT population were classified as moderate risk gamblers, and 9.4 per cent as low risk gamblers. The share of problem and risky gamblers in the NT population is significantly higher than in any other Australian State or Territory

In total 11,335 gamblers reported that they had experienced at least one form of harm as a result of their own gambling. A greater number of people are affected by harms caused by another's gambling across all of the domains of harm. In all, 14,521 people report at least one form of harm from the gambling of others (Stevens, Gupta and Flack, 2019).

Total quantifiable costs of gambling in the NT are estimated to be between \$164.9 million and \$381.3°million. This represents a cost per 'at risk' gambler of between \$9,700 and \$22,500 in 2018. The central estimate is \$190.1 million, or \$11,223 per 'at risk' gambler.

The harms for 'at risk' gamblers in the NT from their own gambling have a total estimated cost in 2018 of between **\$80.8 million and \$158.7 million**, see Table 4.4. The most significant domain of costs from harms resulting from own gambling is the costs of gambling attributable crime (financial and violent crime) followed by excess spending on electronic gaming machines by problem gamblers.

Costs arising from another's gambling are estimated to range **between \$84.2 million and \$222.6 million**, see Table 4.5. As is the case with harm to gamblers from their own gambling, there are a number of forms of harm that could not be accurately valued, suggesting that the estimates may be conservative. Costs of gambling related crime (both violent and property) are the largest domain of costs from another's gambling, particularly victim of crime costs. Emotional and psychological harms also account for substantial costs, particularly at the high bound where they are the largest source of costs.

The relatively wide range between the low bound and high bound estimates are partly as a result of the uncertainty of the scale of the harms, but also reflect uncertainties in the most appropriate cost to place on individual harms.

Whilst the harms from gambling are significant, they are smaller than the costs of some other risk factors such as alcohol. The estimated social cost of alcohol consumption to the NT in 2015/16 was \$1.39 billion (low bound \$1.18 billion, high bound \$2.98 billion (Smith, Whetton and d'Abbs, 2019)). Converting this to 2018 values this would suggest the harms from gambling are around one eighth of the harms from alcohol.

Our estimates of the quantified harms from gambling are likely to be a relatively conservative estimate as there were a number of harms that could not be quantified and or valued. The most significant potential gap is the lack of estimates of the impact of gambling on children, as the prevalence survey only collected data from adults.

## **CHAPTER 1: INTRODUCTION**

### **1.1 Background**

Gambling is a recreational activity enjoyed by many adults in the Northern Territory. The most recent study into the prevalence of gambling in the NT found that 72 per cent of NT adults had engaged in at least one type of gambling over 2018 (Stevens, Gupta and Flack, 2020). The most common forms of gambling were lotteries, raffles/sweeps, and keno.

Whilst a majority of those who gamble can do so without risk there are some gamblers who experience harms from gambling, and whose gambling related behaviours cause harm to others.

This study draws on the 2018 prevalence study to identify the harms arising from at-risk gamblers own gambling, and the harms gambling causes to others, and to value these harms where possible.

It is important to note that this current study is of the social costs of gambling. This means that no attempt has been made to calculate the benefits of gambling either to gamblers themselves or to the broader community through taxation revenue and community benefit fund payments.

Chapter 2 sets out the scale and nature of gambling in the NT, through participation and expenditure.

Chapter 3 outlines current understandings around the types of harm that can arise as a result of gambling, both to the gambler themselves, their family and friends, and to the broader community.

Chapter 4 summarises the harms identified in the 2018 prevalence survey and costs those harms where possible.

This project was granted ethics approval through the DoH/Menzies Human Research Ethic Committee (2020-3846), with reciprocal ethics approval obtained through the University of Adelaide Human Research Ethics Committee.

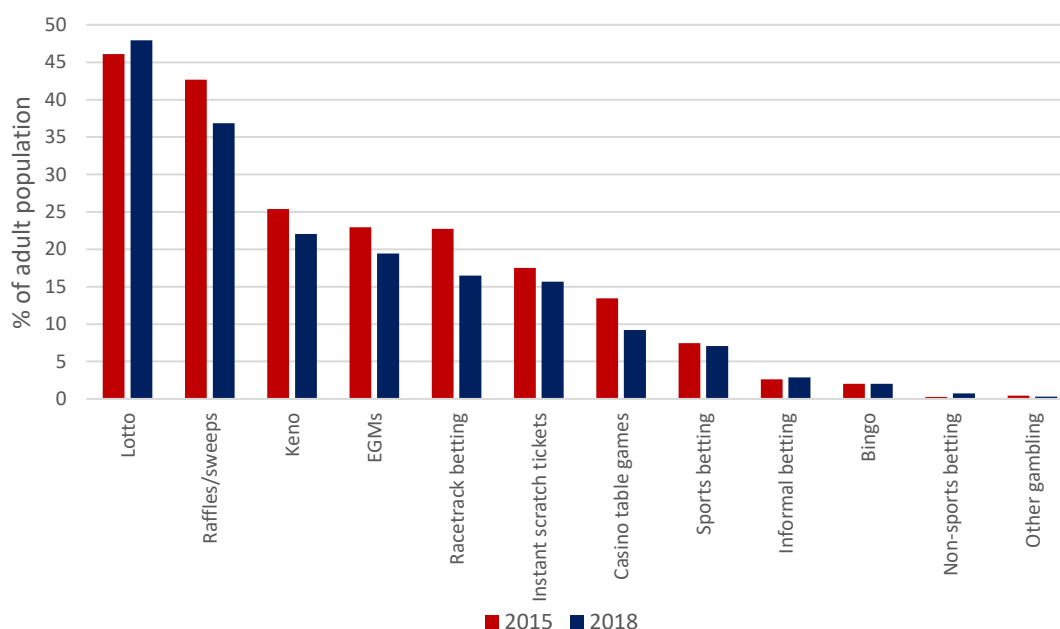


## CHAPTER 2: GAMBLING IN THE NORTHERN TERRITORY

### 2.1 Prevalence by activity

There have been some noticeable shifts in the patterns of gambling participation in the Northern Territory between 2015 and 2018. Figure 1 shows how gambling activities undertaken by the population in the Northern Territory have evolved between 2015 and 2018. For the majority of gambling activities, the proportion of the NT population gambling in this way has fallen between 2015 and 2018. There were significant falls between 2015 and 2018 for participation in raffles, keno, EGMs, racetrack betting, and casino games.<sup>1</sup> Non-sports betting was the only gambling activity that showed a significant increase between 2015 and 2018 however this was from a very low base and it remains the least common form of gambling. The most commonly undertaken gambling activity in the Northern Territory remains lottery ticket buying. Between 2015 and 2018 there was no significant increase in the Lotto, however the prominent position of lotto in NT gambling activities was reinforced as participation in the second most common gambling form of raffles/sweeps fell away strongly.

**Figure 1:** Participation in gambling activities in the last 12 months, 2015 and 2018



Source: 2015 and 2018 NT Gambling Prevalence and Wellbeing Survey

### 2.2 Gambling expenditures

In order to put the harms arising from gambling in context, this section provides a brief overview of recent trends in gambling expenditure in the Northern Territory, and how patterns of expenditure in the NT compare with those in other states and territories. Expenditure data is available on those forms of gambling that are permitted in the Northern Territory and on which gambling taxation or fees are collected, namely:

- wagering on races (thoroughbred, harness and greyhounds);
- electronic gaming machines (EGMs), located in hotels/clubs or in the casino;
- lotteries (lotteries, instant lotteries, lotto and sports pools);

<sup>1</sup> Northern Territory Gambling Prevalence and Wellbeing Survey Report, 2018, p. 20. [https://industry.nt.gov.au/\\_data/assets/pdf\\_file/0010/959176/2018-nt-gambling-prevalence-wellbeing-survey.pdf](https://industry.nt.gov.au/_data/assets/pdf_file/0010/959176/2018-nt-gambling-prevalence-wellbeing-survey.pdf)

- keno;
- casino or table gaming;
- sports betting; and,
- minor gaming.

Data is not available for informal gambling, nor for those forms of on-line gambling that are not permitted in Australia such as on-line casinos and on-line poker.

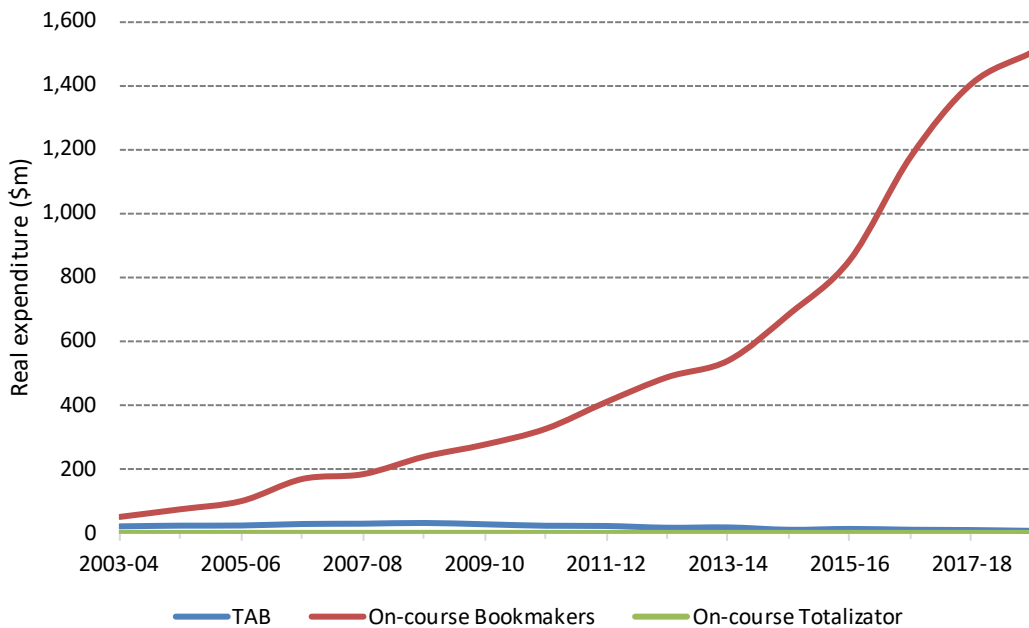
It is also not clear what the net contribution of tourists is to gambling spending in the NT. Data from Tourism Research Australia (TRA, 2020a, 2020b, 2020c, 2020d, 2020e, 2020f, 2020g) suggests that tourists spend \$25 million on gambling and wagering whilst holidaying in the NT. This is around 9 per cent of total gambling expenditure in the NT. However, residents of the NT would also spend some money on gambling when holidaying interstate, so it is likely the net share is slightly lower.

Gambling expenditure is defined as the total amount gambled (i.e. turnover) less the total amount won by players, which represents the net amount lost by players.

The primary data source for expenditures on gambling is the national gambling data published by the Queensland Government Statistician's Office as part of its annual Australian Gambling Statistics publication. Unfortunately, as this data is presented based on the location of the gambling activity, not the location of the person gambling, this published data does not accurately reflect the expenditures by NT residents on on-line gambling products. This is because most of the firms providing these products in Australia are located in the Northern Territory, and so expenditure data for the NT reflects not just the expenditures by NT residents but also those of residents of the rest of Australia made on-line (see Figure 2).

The scale of on-line wagering from around Australia being undertaken with bookmakers located in the NT can be seen in Figure 2. There is a continuing strong rise in the value of wagering with NT based On-course Bookmakers, although at a slightly slower rate than was seen in the mid-2010s, while at the same time, there has been relative stability for NT TAB and On-course Totalizator.

**Figure 2: Per-capita gambling expenditure for Northern Territory, TAB, On-course bookmakers and On-course Totaliztor, real 2018 values**

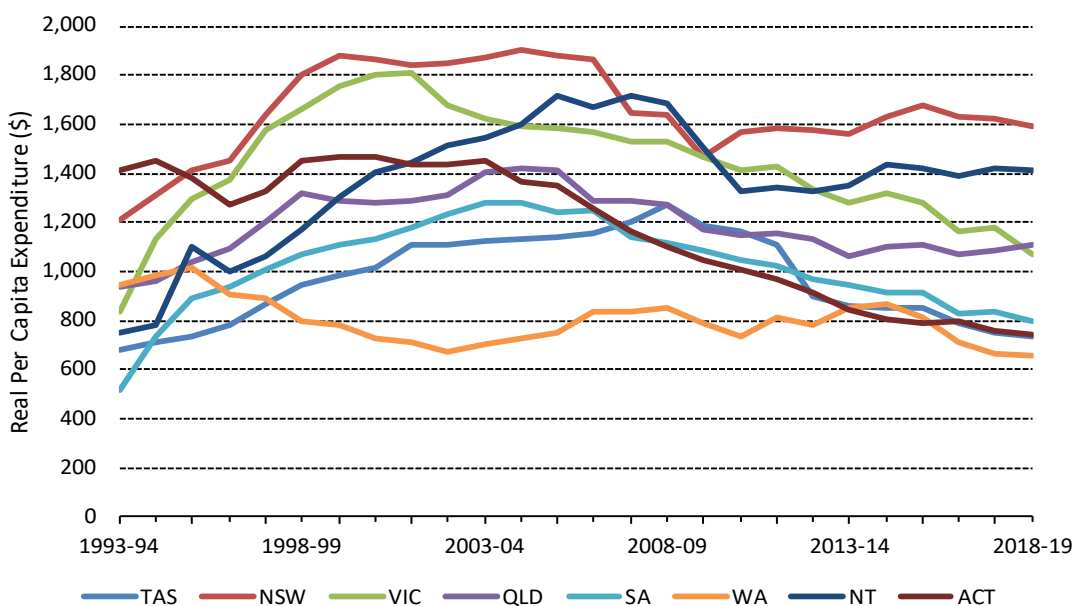


Notes: (a) Expenditure in 2018/19 prices.

Source: Queensland Government Statisticians Office, Australian Gambling Statistics, 36th Edition.

Figure 3 shows data on NT gambling expenditure per capita excluding racing and sports betting, shows that in the NT this peaked in 2008-09 and after initially falling away strongly thereafter, it has stabilised at around \$1,400 per capita. In 2018-19 the Northern Territory has the second highest level of gambling expenditure per capita (excluding racing and sports betting), compared to the other states and territories.

**Figure 3: Per-capita gambling expenditure excluding racing and sports betting, by state/territory, Australia, real 2018 values**

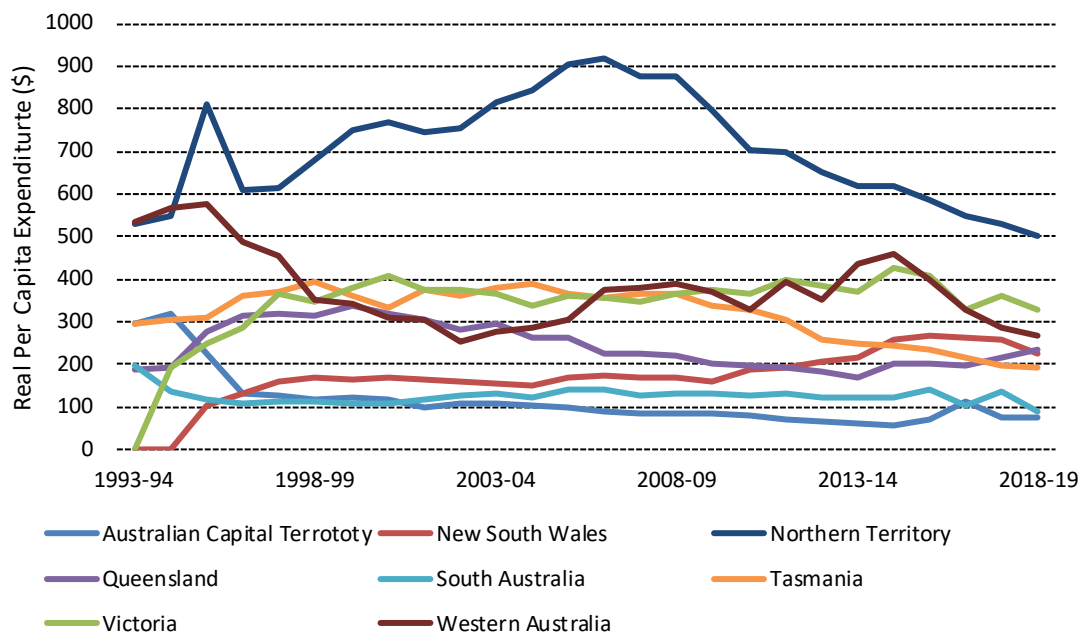


Notes: (a) Expenditure in 2018/19 prices.

Source: Queensland Government Statisticians Office, Australian Gambling Statistics, 36th Edition.

Figure 4 shows how real per capita expenditure on casino gambling in the Northern Territory has evolved since 1993-94. Northern Territory real per capita expenditure on casino gambling remains relatively high, the highest by a large margin compared to other state and territory jurisdictions for the majority of this time period. After an initially small fall from the peak of 2006-7 (\$919), there has been a strong downward shift in the Northern Territory real per capita casino expenditure since 2008-9 to \$502 in 2018-19. Tasmania and Western Australia are the other Australian states that have seen real casino expenditure erode strongly over the past decade, while some such as Victoria have had more recent slighter falls.

**Figure 4: Casino expenditure**



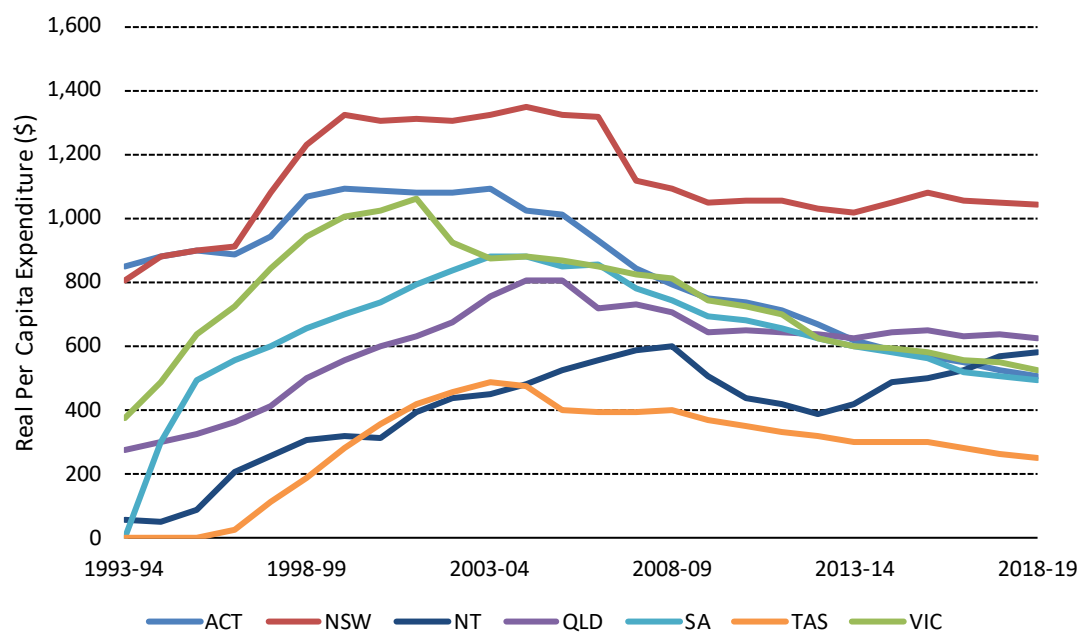
Notes: (a) Expenditure in 2018/19 prices.

Source: Queensland Government Statisticians Office, *Australian Gambling Statistics, 36th Edition*.

Northern Territory real per capita expenditure on Electronic Gaming Machine (EGM) gambling has altered in its relative position against other states and territories since 1993-94 (see Figure 5). Interstate comparisons of EGM expenditure are restricted to machines in hotels and clubs as the national statistics do not separate EGM gambling in casinos from other forms of casino gambling. Northern Territory real per capita expenditure on EGM gambling grew to peak in 2008-9 (\$603), the second least above Tasmania, before falling away until 2012-13 after which it has risen strongly and overtaken other states and territories to become the third highest after NSW and Queensland in 2018-19 (\$580). The strong rise in the real per capita value of Northern Territory EGM gambling between 2012-13 and 2018-19 is prominent and unique amongst the jurisdictions. An evaluation of EGM policy and its effect on EGM expenditure by Stevens and Livingstone (2019) found the likely reason for this increase was changes to the amount that could be loaded into an EGM (increased from \$250 in coins to \$1000 in any denomination of notes) and an increase in the machine caps in hotels (from 10 to 20) and clubs (from 45 to 55).



**Figure 5: Per capita EGM spending**



Notes: (a) Expenditure in 2018/19 prices.

Source: Queensland Government Statisticians Office, *Australian Gambling Statistics, 36th Edition*.



### CHAPTER 3: HARMS OF GAMBLING

Whilst gambling is a purely recreational activity for many people in the Northern Territory, for some people it gives rise to harms, to themselves, to their families and to their communities.

Unlike some other forms of social harm such as the harms from alcohol and smoking, gambling related harms are very contextual, and do not arise directly from a particular level of the activity itself but rather from how participation in gambling relates to the rest of the gamblers life. For example, the potential health impacts of low levels of alcohol consumption are very small, but consumption at 'risky' levels (in excess of 10 standard drinks in a week or 4 standard drinks on any one day) increases the chance that the drinker will get a range of short-term and long-term health conditions (such as certain cancers and hypertension), and getting intoxicated increases the risks of being a perpetrator of assault, and increases the chance of being injured in an accident.

However, whether gambling causes harm depends upon the extent to which it is under the gambler's control, and whether it conflicts with other commitments in their life rather than the specific expenditure level. For example, the late Kerry Packer is reported to have lost \$30 million betting on horse races with the bookmaker Bruce McHugh (SMH, 2005<sup>2</sup>), with no apparent ill effects on his business career or family life. Losing even 1 per cent of that amount would cause most Australians at best significant financial distress and in many cases lead to bankruptcy.

In most instances harms from gambling will arise from what is known as problem gambling (see Section 4.1) or at risk gambling behaviour. This is the case for both the harms to gamblers themselves, to gambler's families and friends, and to the community as a whole.

At a broad level these gambling related harms can arise from:

- excess expenditure on gambling (where excess is spending more than the gambler planned to spend or more than the gambler can afford);
- excess time spent gambling; and
- excess mental focus on gambling.

Research into the potential negative impacts of gambling has been long standing, however its prominence was significantly increased by the Productivity Commission's 1999 Inquiry into Australia's Gambling Industries. This included a very large scale prevalence study enabling the quantification of many low frequency forms of harm that had not previously been precisely measured (and in some cases have been measured since at the population level)

The taxonomy of harms set out in Table 1 is largely based on that set out in Langham et al (2016), although it also draws on Productivity Commission (1999, 2010), Browne et al. (2016), Browne et al. (2017); Browne and Rockloff (2018); Li et al. (2017); and Delfabbro et al. (2020a, 2020b).

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<sup>2</sup> [no byline] Packers gambling feats: fact or fiction?, Sydney Morning Herald, December 28 2005



**Table 1: Primary potential harms of gambling**

<b>Primary impacts</b>	<b>Impacts on gambler</b>	<b>Impacts on others</b>
<b>Financial harms</b>	Reduced savings/assets Reduced spending on other discretionary goods and services Increased debt Selling or pawning items Late paying bills Inability to pay for essential goods and services Cut-off from utilities Forced sale of major assets Loss of housing (e.g. unable to pay rent/mortgage leading to eviction) Bankruptcy	Reduced household savings/assets Reduced household spending on other goods and services Increased household debt Loss of items sold or pawned by the gambler Late paying bills Inability to pay for essential goods and services Cut-off from utilities Forced sale of major assets Loss of housing (e.g. unable to pay rent/mortgage leading to eviction) Bankruptcy of family members; potential implications for joint assets
<b>Relationship difficulties</b>	Dishonest communication with family/friends Reduced time, or reduced quality of time spent with family/friends Failing to meet commitments to family Neglecting parental role (e.g. failing to take children to school or to extra-curricular activities) Conflict with partner or other family members Loss of trust of partners/family members Relationship breakdown (emotional and financial impacts) Divorce (emotional and financial impacts)	Family member/friend has less time available/less focus when present Family member fails to meet commitments Neglecting parental role (e.g. failing to take children to school or to extra-curricular activities) Conflict with partner or other family members Loss of trust of partners/family members Relationship breakdown (emotional and financial impacts) Divorce (emotional and financial impacts)
<b>Emotional or Psychological Distress</b>	Emotional or psychological distress of living outside of your value system Experience of distorted cognitions or erroneous beliefs Emotional or psychological distress of hiding gambling from others Reduced feelings of self worth Extreme emotional or psychological distress due to inability to control gambling and or harms to others Suicidal ideation	Impacts of suicidal ideation on family and friends

<b>Primary impacts</b>	<b>Impacts on gambler</b>	<b>Impacts on others</b>
	Self-harm Suicide	Emotional impacts of suicide/self-harm of family and friends Financial impacts of suicide self-harm on household Financial impacts of suicide/self-harm on community
<b>Reduced productivity at work or study</b>	Lost time spent at work  Lost productivity/performance at work or study Lost employment Fail course of study Financial impacts of unemployment Reduced job prospects  Reduced lifetime earnings Impacts of unemployment on mental and physical wellbeing	Extra work to cover absences by work colleagues  Reduced productivity of work colleagues Transaction costs of dismissal and finding new employee Financial impacts of unemployment on household Increased social security costs Impacts of family member's unemployment on mental and physical wellbeing Reduced household income and wealth Increased healthcare costs due to reduction in wellbeing caused by unemployment
<b>Crime and justice system costs</b>	Financial crime  Legal defence costs  Imprisonment  Reduced lifetime income due to imprisonment  Perpetrator of intimate partner or family violence at least partially caused by gambling problems Victim of intimate partner violence at least partially caused by gambling problems	Financial cost to business owner  Impact on workplace colleagues Cost of police investigation Prosecution costs Court costs Lost access to significant other/family member/friend due to incarceration Cost to community of detention Reduced contribution to household and community from unpaid work Reduced economic output Victim of intimate partner or family violence at least partially caused by gambling problems
<b>Impacts on physical health</b>	Increased sedentary behaviour Physical impacts of emotional and psychological distress such as increased blood pressure Reduced levels of self care	Costs of increased use of health services

<b>Primary impacts</b>	<b>Impacts on gambler</b>	<b>Impacts on others</b>
	Disease or injury arising from lack of self-care Increased health risks from co-morbid behaviours such as smoking and drinking Increased physical health risks from poor mental health Physical impacts of self-harm Physical impacts of intimate partner violence  Premature impairment and mortality due to reduced health	Reduced contribution to household and community from unpaid work Reduced economic activity
<b>Cultural harm</b>	Reduced engagement in cultural rituals Culturally based shame in relation to inability to meet cultural roles and expectations Reduced connection to community	Reduced engagement in cultural rituals  Community members with reduced connection
<b>Treatment and community support costs</b>	Time in treatment	Cost of providing gamblers' help services  Cost of providing additional financial counselling Cost of regulating gambling

Source: Langham et al (2016); Productivity Commission (1999, 2010), Browne et al. (2016), Browne et al. (2017); Browne and Rockloff (2018); Li et al. (2017); and Delfabbro et al. (2020a, 2020b).

## CHAPTER 4: VALUING THE SOCIAL COSTS OF GAMBLING

### 4.1 Prevalence of harms in the NT

#### **Problem gambling**

Data on the prevalence of harms in the Northern Territory is taken from the 2018 Gambling Prevalence Study, the most recent data collection on participation in, and harms arising from, gambling in the NT.

Most, but not all of the harms from gambling arise from individuals experiencing problem gambling. The Australian Ministerial Council on Gambling defines problem gambling as gambling that “is characterised by difficulties in limiting money and/or time spent on gambling which leads to adverse consequences for the gambler, other, or for the community” (Neal, Delfabbro and O’Neil, 2005).

The prevalence of problem gambling is identified through administering a survey instrument collecting information on respondents’ gambling and related behaviours. At present the Canadian Problem Gambling Severity Index is the most frequently used measure for identifying the population prevalence of problem and risky gambling.

In 2018, 1.4 per cent of the population of the NT aged 18 and older were classified as experiencing problem gambling (Table 2). This is almost 2,500 Northern Territorians whose gambling risk is severe enough to be classified as problem gambling. A further 3.6 per cent of the NT population were classified as moderate risk of, and 9.4 per cent as low risk of problem gambling. The share of problem and risky gamblers in the population is significantly higher than they were in 2015, despite the overall share of the population who gambles declining slightly over that period.

**Table 2:** Prevalence of gambling risk, Northern Territory, population aged 18 and older, 2015 and 2018, proportion (standard error) and numbers of people

	<b>Problem gambler</b> (PGSI 8 +)	<b>Moderate risk gambler</b> (PGSI 3-7)	<b>Low risk gambler</b> (PGSI 1-2)	<b>Non-problem gambler</b> (PGSI = 0)	<b>Does not gamble</b>
<b>2018</b>					
<b>Prevalence (% , standard error in brackets)</b>	1.4 (0.4)	3.6 (0.5)	9.4 (0.8)	57.3 (1.2)	28.5 (1.1)
<b>Number of people</b>	2,487	6,426	16,938	103,616	51,489
<b>2015</b>					
<b>Prevalence (% , standard error in brackets)</b>	0.7 (0.2)	2.9 (0.5)	8.1 (0.9)	64.3 (1.4)	24.0 (1.2)
<b>Number of people</b>	1,206	5,128	14,383	113,807	42,392

Source: Stevens, Gupta and Flack, 2019

Not only has the prevalence of problem gambling significantly increased over the three years to 2018, it is substantially higher in the Northern Territory in 2018 than in other jurisdictions. Outside of New South Wales, problem gambling prevalence is around half that in the NT, and the combined prevalence of problem gambling and moderate risk gambling is around two thirds of the NT level, see Table 3.



**Table 3:** Prevalence of problem gambling in most recent prevalence survey by state and territory, proportion of the population aged 15+

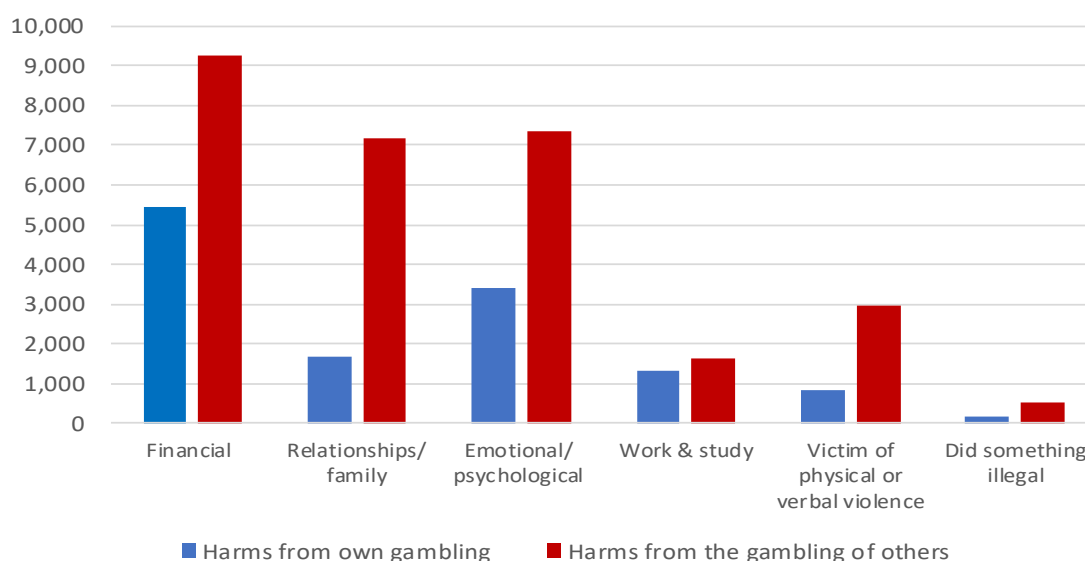
	Problem gamblers %	Moderate risk gamblers %	Low risk gamblers %	Moderate risk and problem gamblers %
Northern Territory 2018	1.4	3.6	9.4	5.0
Northern Territory 2015	0.7	2.9	8.1	3.6
New South Wales 2018	1.0	2.8	6.6	3.8
Australian Capital Territory 2018	0.8	2.5	7.0	3.3
Victoria 2014	0.8	2.8	8.9	3.6
South Australia 2018	0.7	2.2	4.6	2.9
Tasmania 2020	0.4	1.7	4.3	2.1
Queensland 2016-17	0.5	2.5	6.4	3.0

Source: Stevens, Gupta and Flack, 2019; 2020 values for Tasmania from SACES 2021

### Specific harms

Data on the specific harms arising from their own gambling was collected from all gamblers 'at risk' of or experiencing problem gambling. All survey respondents, whether or not they were themselves 'at risk' gamblers, were also asked questions around whether they had experienced harms as a result of someone else's gambling. As the survey was only administered to adults it predominantly captures harms experienced by adults, although there is a specific question asked of adults as to whether "Kids missed out on school or something" which picks up one dimension of harms to children. It is also likely that some of the harms self-reported by gamblers will capture harms to children. However, the lack of data collection from children about the harms they have experienced as a result of the gambling of other means that the data likely understates the scale of harms experienced by children.

**Figure 6:** Number of persons experiencing harm from gambling, 2018, 'Felt ashamed or regret' excluded.



Source: Stevens, Gupta and Flack, 2019

In total 11,335 gamblers reported that they had experienced at least one form of harm as a result of their own gambling. The most frequently reported form of harm from one's own gambling was 'Felt ashamed or regret'. As the significance of impact on quality of life is less certain for this specific harm, this harm is not included in the totals used for Figure 6.

A greater number of people are affected by harms caused by another's gambling across all of the domains of harm. In all, 14,521 people report at least one form of harm from the gambling of others. The gap in the number of people affected is particularly large in the case of 'relationships/family' harms where there are more than four times as many people who report harm from another's gambling as report 'Relationships/family' harm from their own gambling.

Excluding the less significant harms of 'Felt ashamed or regret', the most common form of harm from gambling was financial, with around 5,500 people reporting at least one form of financial harm from their own gambling, and just over 9,000 adults reporting financial harm from the gambling of others, see Table 4.

Physical or verbal violence caused by gambling was reported by 3,786 adults in the Northern Territory (3,000 of whom reported violence as a result of the gambling of others), with 664 reporting having done something illegal as a result of gambling (504 of whom did something illegal as a result of another's gambling).

In many cases the reported harms occurred on a significant number of occasions per year. For example, 222 at risk gamblers reported that 'kids missed out on school or something' with this occurring on average 98 times per year in each of these gamblers' households. Feeling 'depressed' or 'stressed/anxious' were also high frequency harms amongst high-risk gamblers.

**Table 4:** Frequency and incidence of harms caused by gambling, impacts of own gambling and from the gambling of others

	Harms from own gambling (at risk gamblers only)		Harms from the gambling of others (all persons aged 15+)	
	Number of people	Number of occasions	Number of people	Number of occasions
<b>Financial harms</b>	<b>5,425</b>	<b>215,536</b>	<b>9,275</b>	<b>564,129</b>
Ran out of money for rent/mortgage <sup>a</sup>	1,240	17,070	5,335	125,751
Ran out of money for food <sup>a</sup>	1,678	47,535	3,800	125,979
Ran out of money for bills <sup>a</sup>	1,319	23,166	5,057	103,191
Increased credit card debt <sup>a</sup>	1,376	23,445	1,539	16,062
Raided savings <sup>a</sup>	3,349	71,160	3,654	53,753
Borrowed money from family/friends <sup>a</sup>	1,798	27,926	4,694	117,760
Debt collectors repossessed something <sup>a</sup>	54	215	506	4,255
Sold or hocked something <sup>a</sup>	362	5,021	1,196	17,468
<b>Emotional/psychological harms</b>	<b>3,405</b>	<b>229,107</b>	<b>7,363</b>	<b>531,141</b>
Felt ashamed or had regrets <sup>a</sup>	8,355	269,940	4,556	299,388
Felt stressed or anxious <sup>a</sup>	3,061	134,023	7,251	437,625
Felt depressed <sup>a</sup>	2,121	95,084	3,254	162,635
<b>Relationship/family harms</b>	<b>1,680</b>	<b>56,567</b>	<b>7,166</b>	<b>454,675</b>
Relationship problems with family/friends <sup>a</sup>	1,626	34,813	7,017	401,592
Physical or verbal violence towards you <sup>b</sup>	832	8,008	2,954	121,227
Kids missed out on school or something	222	21,754	1,896	53,083
<b>Work/study related harms</b>	<b>1,318</b>	<b>24,565</b>	<b>1,634</b>	<b>63,903</b>
Missed work or study classes <sup>c</sup>	408	5,675	788	15,407
Under-performed at work/study <sup>b</sup>	1,197	18,792	1,357	48,346
Lost your job or kicked out of study	25	98	25	150
<b>Criminal activity</b>	<b>160</b>	<b>3,722</b>	<b>504</b>	<b>10,180</b>
Did something outside the law or illegal	160	3,722	504	10,180

<sup>a</sup> Significance of association for harm from own gambling, p<0.001

<sup>b</sup> Significance of association for harm from own gambling, p<0.01

<sup>c</sup> Significance of association for harm from own gambling, p<0.05

<sup>d</sup> Significance of association for harm from own gambling, p=0.08

Source: Stevens, Gupta and Flack, 2019

#### 4.2 Overall cost of harms

Costs of gambling are reported in Table 5 and 6 for those forms of harms which could be reliably costed. The specific approach taken for each type of harm is detailed in section 4.3 to 4.7. The main source of the costing approaches used (and parameter values) was Smith, Whetton and d'Abbs (2019), with the approach to identifying the scale of excess expenditure on gambling drawing on the approach developed in Productivity Commission (1999).

Costs are presented separately for those costs arising from an 'at risk' gambler's own gambling, and those costs arising from harms caused by another's gambling. Excess expenditures by problem gamblers on EGMs, and spending by the NT Government on measures to ameliorate the harms of problem gambling are included in the 'harms from own gambling' table.

Not all the harms of gambling identified through the prevalence study were able to be costed. For example, in 2,118 households it was reported that 'kids missed out on school or something' given that it occurred on an average of 98 occasions for each case reported by gamblers as resulting from their own gambling could have substantial impacts on the ability of these children in households affected by at risk gambling to access education. Data on the lifetime impacts of child abuse and neglect on the educational attainment of children suggests that the average cost per child is \$3,757, which if the impacts picked up in this survey were as severe would imply a cost of at least \$11.9 million<sup>3</sup> in addition to the costs outlined in Tables 4.4 and 4.5 (McCarthy et al. 2016, updated to 2018 values in Smith, Whetton and d'Abbs, 2019). If the scale of impacts on the children concerned were as significant as the overall average impact of child abuse and neglect, then the cost for children would be at least \$1.1 billion.

And there are some forms of harm identified in broader research, such as bankruptcy and self-harm, which have a frequency that is too low to be reliably picked up in a survey of residents of the NT.

Also, whilst 'excess gambling expenditure' by gamblers experiencing problem gambling (i.e. that expenditure that only occurred as a result of the gambling problem) is captured as secondary financial harms have not been able to be included. For example, 1,240 at risk gamblers reported that they had 'run out of money for rent/mortgage' on an average of 14 occasions for those reporting this form of harm. The high frequency of missed payments is likely to have resulted in some cases where the gambler and their family were evicted from their housing, and possibly made homeless. However, we have no data that would allow the frequency of these secondary harms to be calculated.

It is also possible that some of these financial harms manifest through other forms of harm that are quantified. For example, the number of occasions on which it is reported that at risk gamblers, and those harmed by another's gambling "ran out of money for food" was also very high (occurring an average of 23.8 times for each of the gamblers reporting it); some of this harm may have manifested in the incidence of gambling related financial crime.

Across all of the dimensions of harms which could be reliably costed, the harms for 'at risk' gamblers in the NT from their own gambling have a total estimated cost in 2018 of between **\$80.8 million and \$158.7 million**, see Table 4.4.

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<sup>3</sup> We don't actually have an estimate of the number of children affected, only the number of adults who reported this as a harm experienced by at least one child in their household; as such this estimate may well be substantially understated.

The most significant domain of costs is the costs of gambling attributable crime (financial and violent crime) followed by excess spending on electronic gaming machines by problem gamblers.

**Table 5: Social costs of gambling – costs arising from own gambling for at risk gamblers**

	People impacted	Per person assumed cost (\$)		Total cost (\$'million)	
		Low	high	Low	high
<b>Financial harms</b>					
Excess spending on electronic gaming machines by problem gamblers	2,185 <sup>a</sup>	7,225	11,130	15.8	24.3
<b>Emotional/psychological harms</b>					
Felt stressed or anxious	3,061	1,419	9,275	4.3	28.4
Felt depressed	2,121	3,146	20,559	6.7	43.6
<b>Work/study related harms</b>					
Missed work (number of occasions)	5,675	435	435	2.5	2.5
Under-performed at work (number of occasions)	18,792	217	217	4.1	4.1
Lost job:					
lost income	98	8,454	8,454	0.8	0.8
employee job search costs	98	4,719	4,719	0.5	0.5
employer staff recruitment and training costs	98	8,553	8,553	0.8	0.8
<b>Relationship/family harms</b>					
Physical or verbal violence towards gambler:					
police costs	166	11,546	11,546	1.9	1.9
court and correction system costs	58	64,254	64,254	3.7	3.7
victim of crime costs	832	3,404	6,065	2.8	5.0
<b>Criminal activity</b>					
Did something outside the law or illegal (assumed to be property crime):					
police costs	931	11,546	11,546	10.7	10.7
court and correction system costs	326	63,082	63,082	20.5	20.5
victim of crime costs (number of occasions)	3,722	861	2,529	3.2	9.4
<b>Harm minimisation costs</b>					
Community Benefits Fund - amelioration grants				1.5	1.5
Community Benefits Fund - gambling research grants				0.8	0.8
Gambling regulation - policy				n/a	n/a
Gambling regulation - enforcement				n/a	n/a
<b>Total costs of own gambling</b>				<b>80.8</b>	<b>158.7</b>

Note <sup>a</sup> This is not the total number of problem gamblers, but the number of problem gamblers who participate in EGM gambling

Source: Stevens, Gupta and Flack, 2019, Smith, Whetton and d'Abbs, 2019, Global Burden of Disease Collaborative Network 2018, ABS 2021a, b, Abelson 2008, Community Affairs Reference Committee (2015), Productivity Commission, 1999

Costs arising from another's gambling are similar in scale to costs arising from gamblers own gambling and are estimated to range **between \$84.2 million and \$222.6 million**, see Table 6. As is the case with harm to gamblers from their own gambling, there are a number of forms of harm that could not be accurately valued, suggesting that the estimates may be conservative. In particular, lack of data on the exact impacts and severity of harms to children from gambling by a member of their household is likely to be significant but cannot be costed given current data.

Costs of gambling related crime (both violent and property) are the largest domain of costs from another's gambling, particularly victim of crime costs for gambling attributable assaults. Emotional and psychological harms also account for substantial costs, particularly at the high bound where they are the largest source of costs.

**Table 6: Social costs of gambling – costs arising from the gambling of others**

	People impacted (number)	Per person assumed cost (\$)		Total cost (\$'million)	
		Low	high	Low	high
<b>Emotional/psychological harms</b>					
Felt stressed or anxious	7,251	1,419	9,275	10.3	67.3
Felt depressed	3,254	3,146	20,559	10.2	66.9
<b>Work/study related harms</b>					
Missed work (number of occasions)	15,407	435	435	6.7	6.7
Under-performed at work (number of occasions)	48,346	217	217	10.5	10.5
Lost job:					
lost income	150	8,454	8,454	1.3	1.3
employee job search costs	150	4,719	4,719	0.7	0.7
employer staff recruitment and training costs	150	8,553	8,553	1.3	1.3
<b>Relationship/family harms</b>					
Physical or verbal violence towards gambler					
police costs	591	11,546	11,546	6.8	6.8
correction system costs	207	64,254	64,254	13.3	13.3
victim of crime costs (number of occasions)	2,954	3,404	6,065	10.1	17.9
<b>Criminal activity</b>					
Did something outside the law or illegal (assumed to be property crime):					
police costs	126	11,546	11,546	1.5	1.5
correction system costs	44	63,082	63,082	2.8	2.8
victim of crime costs (number of occasions)	10,180	861	2,529	8.8	25.7
<b>Total costs of own gambling</b>				<b>84.2</b>	<b>222.6</b>

Source: Stevens, Gupta and Flack, 2019, Smith, Whetton and d'Abbs, 2019, Global Burden of Disease Collaborative Network 2018, ABS 2021a, b, Abelson 2008, Community Affairs Reference Committee (2015), Productivity Commission, 1999

Combining the harms to gamblers from their own gambling, and the harm to the community from the gambling of other, gives an estimated **total quantifiable social cost of gambling of between \$164.9°million and \$381.3 million.**

#### 4.3 Calculating the cost of financial harms

Most of the financial harms arising from gambling stem from excess expenditures by gamblers experiencing problem gambling as a result of their gambling problem. As noted above, whilst they may result in substantial additional harms, it was not possible to quantify secondary impacts of the financial harms of gambling.

There is good evidence to demonstrate that one of the impacts of problem gambling is that it will result in gamblers spending more than they intended. This represents a social cost from an economic perspective as this is expenditure that occurs not

because of the satisfaction the gambler derives from it, but instead as a result of the gambling problem.

Estimates are available from the prevalence survey about how much gamblers spend on EGM gambling by gambling risk category. This means that excess expenditure can be calculated for spending by problem gamblers on EGM, but not on their other gambling activities and consequently excess expenditure is likely to be underestimated in these calculations.

Based on self-reported expenditures, problem gamblers who gambled on EGMs spend \$10,755 per year on average, see Table 7. Not all of this will be excess expenditure because of their problem gambling, as most if not all would have EGM expenditures if they had not transitioned into problem gambling. The Productivity Commission (1999) addressed this issue by assuming that if they had not developed a gambling problem, then on average problem gamblers would spend as much as regular, non-problem gamblers. Expenditure by regular non-problem gamblers was not available for the Northern Territory. Instead we have assumed that in the absence of a gambling problem, problem gamblers would have had expenditure that was in line with that of low risk gamblers. Expenditure by low risk gamblers is likely to be somewhat higher than regular non-problem gambling and so this assumption is conservative.

**Table 7: Self-reported EGM gambling spending by gambling risk category**

	Number of gamblers	Total reported expenditure (\$)	Share of total reported expenditure (%)	Average per gambler expenditure (\$)
Problem gambling	2,185	23,500,000	38%	\$10,755
Moderate risk gambling	3,958	17,500,000	28%	\$4,422
Low risk gambling	8,130	10,500,000	17%	\$1,292
Non-risk gambling	20,888	10,600,000	17%	\$507
<b>NT EGM gamblers</b>	<b>35,160</b>	<b>62,100,000</b>	<b>100%</b>	<b>\$1,766</b>

Source: Stevens, Gupta and Flack, 2019

To the extent that excess gambling expenditure by problem gamblers flows to government through gambling taxation then it is a transfer rather than a social cost (with the benefit to the rest of society offsetting the cost to the gambler). Unfortunately, this cannot be precisely estimated as EGM expenditure are not disaggregated between hotels/clubs and casinos, which have different tax rates. As a broad approximation we have assumed problem gamblers EGM expenditures are split 50:50 between hotels/clubs and the casinos. Average tax rates are 28.75 per cent for EGMs in hotels/clubs and 10.49 per cent for EGMs in the casinos (Barnes et al. 2017).

Taking the excess expenditures by problem gamblers as actually reported and factoring them down by the average of the two tax rates gives an estimated average excess spending by each problem gambler participating in EGM gambling of **\$7,225**. This is used as the low bound in our calculations.

Gamblers under-estimate their net expenditure on gambling, and any spending estimates based on self-report expenditure are likely to be too low. For example, the Australian Gambling Statistics reports that actual net expenditure on EGM gambling in the NT was \$103.4 million in 2017/18 and \$106.8 million in 2018/19, suggesting that 2018 net expenditure was \$105.1 million (2020), well above the self-reported estimated spend of \$62.1 million. Allowing for around 9 per cent of gambling spend to be by

tourists, and again factoring down by the average of the two tax rates, gives an excess expenditure per problem gambler of **\$11,130**. This was used for the high bound.

#### **4.4 Calculating the cost of emotional/psychological harms**

In order to identify the cost of psychological harm arising from gambling it is necessary to express it in terms where the harm can be quantified, and then monetised.

##### **Quantifying psychological harms**

Quality of life impacts due to ill-health or disability are typically quantified through a Disability Adjusted Life Year (DALY). DALYs measure the equivalent of healthy years of life lost due to an illness or a disability. For example, a year of life lived with perfect health has a DALY of 0, as no quality of life is lost to ill-health. If a person has a condition that has a significant negative impact on their quality of life, e.g. late stage pancreatic cancer, then this might be expected to reduce quality of life by say 55 per cent compared to someone in full health. In that case the DALYs lost in that year would be 0.55. This quality of life scale allows the impact of various conditions to be quantified.

Each of the types of psychological harms experienced as a result of gambling needed to be mapped against conditions for which DALY estimates exist in order to be able to quantify their impact on quality of life. 'Feeling ashamed or had regrets' was excluded from the cost calculation as there was no condition with which it could reasonably be mapped.

'Feeling stressed or anxious' was mapped to the condition 'mild anxiety disorder', described in the Global burden of Disease Study as *"feels mildly anxious and worried, which makes it slightly difficult to concentrate, remember things, and sleep. The person tires easily but is able to perform daily activities."* The 2016 Global Burden of Disease study estimates that this condition has a disease weight (the estimated DALY lost for a year with the condition) of 0.03, with a confidence interval of 0.018–0.046. (Global Burden of Disease Collaborative Network, 2017).

'Felt depressed' was mapped to the condition 'moderate anxiety disorder', described in the Global burden of Disease Study as *"feels anxious and worried, which makes it difficult to concentrate, remember things, and sleep. The person tires easily and finds it difficult to perform daily activities."* The 2016 Global Burden of Disease study estimates that this condition has a disease weight (the estimated DALY lost for a year with the condition) of 0.133, with a confidence interval of 0.091–0.186 (Global Burden of Disease Collaborative Network, 2017).

In each case it was assumed that the person affected by gambling would only experience this impact on quality of life some of the time on average, with each DALY discounted by 50 per cent to allow for these asymptomatic periods. This gives a DALY of 0.015 for 'Feeling stressed or anxious' and 0.0665 for 'Felt depressed'.

##### **Valuing psychological harms**

The next stage is to allocate a monetary value to the DALYs lost. There are well accepted approaches to valuing the intangible cost of premature mortality through what is known as the value of a statistical life (VoSL, the amount of money society is willing to spend to avert one premature potentially preventable death, for example through road safety improvements or chemical exposure standards). However there is



considerably more debate around the best approach to valuing a DALY (Baker et al., 2010; Dolan, 2010; Donaldson et al., 2011; Miller and Hendrie, 2011).

A straightforward approach, which also has the advantage of using pre-existing parameter values (used, for example, in Moore (2007) and Nicosia et al., (2009)) is to assume the value of a DALY equals that of a statistical life year. Values of a statistical life year (VoSLY) are derived from the value of a statistical life by treating the value of a statistical life as if it were a lump sum that reflected annual payments over the expected years of remaining life (typically assumed to be 40 years for the people whose behaviours are used in estimating the VoSL (Abelson (2008))). If the VoSL is thought of as a lump sum, then it is possible to calculate what annual payment over 40 years would be of the same value as the lump sum. This annual equivalent value is the VoSLY, and it can be calculated using the following formula:

$$VoSLY_{t=1} = VoSL \times \frac{(1 - (1 + g)/(1 + r))}{(1 - (\frac{1 + g}{1 + r})^{years})}$$

Where

- VoSL = the value of a statistical life being used, in this case from Abelson, 2008 converted to 2018 values;
- g = the annual escalation factor used for the VoSL, in this case the expected long-term per capita growth rate in GDP of 1.5 per cent per annum
- r = the discount rate used, in this case seven per cent real per annum; and
- years = the number of years of healthy life remaining assumed to be implicit in the VoSL calculation, in this case following Abelson (2008) we have used 40 years.

The limitation of this simple approach is that there is research that has shown that the value of a life year can be contextual, e.g. an individual's willingness to pay to avoid long-term illness or disability can be influenced by a range of factors such as the perceived degree of control over the risk, the person's age, their pre-existing health state, their willingness to pay and their views on how to optimise spending over their lifetime (Baker et al., 2010; Dolan, 2010; Donaldson et al., 2011).

For this reason, some authors contend that accurate estimates of DALYs can only be obtained through a bespoke study aimed at capturing the preferences and willingness to pay of the population of interest (Baker et al., 2010; Dolan, 2010; Donaldson et al., 2011). However, such studies are typically very time intensive and require substantial resources to implement. As such they are ill-suited for public policy analysis. There is also the concern that in adopting population specific value for a DALY, the difference in valuation may be driven by sampling error in the study rather than any difference in the underlying 'true' value. Finally, there are questions about the usefulness of any case specific DALYs obtained as in cases where it will be used in societal decision making or resource allocation it society's values that should guide the expenditure not those of a subset.

The approach adopted in this study is to use a VoSLY estimate to value DALYs. The preferred VoSL is that estimated in Abelson (2008) as this is the value adopted in official guidance by the Australian Government. This has been used as our upper bound.

The Abelson estimate of the value of a statistical life was \$3-4 million in 2007 values. This was converted to a VoSLY using 40 years as the years of remaining life, and then

converted to 2018 values using the growth rate in nominal per capita GDP<sup>4</sup> over the period, giving an upper bound VoSLY of \$309,157.

Internationally, much higher values are often used reflecting the findings of studies into the value of a statistical life and the Abselson value is quite conservative by comparison. The US Department of Transport used a value of a statistical life of US\$9.1 million in 2013 values (US Department of Transportation, 2015). This would imply a US study following a similar calculation approach would use a DALY that was around three times higher in 2018 Australian dollars than the value we have used in this analysis.

As a lower bound for the value per DALY lost we have used the implicit threshold value per DALY used for PBS approval of new pharmaceuticals, of \$45,000 in 2014/15 values as the low bound: this latter value is implied rather than explicitly stated (Community Affairs References Committee, 2015) converted to 2018 values giving a lower bound VoSLY of \$47,302.

Applying these upper and lower bound estimates of the VoSLY to the relevant DALYs gives a cost per affected person of between \$1,419 and \$9,275 for 'Feeling stressed or anxious' and between \$3,146 and \$20,559 per person who 'felt depressed'.

#### **4.5 Calculating the cost of work related harms**

There are two broad types of work related harms that are valued in this analysis; absenteeism/presenteeism at work and loss of employment.

##### ***Valuing absenteeism and presenteeism***

Absenteeism and presenteeism can be valued using two broad approaches, valuing time at its labour cost (effectively assuming that the cost is to replace the lost labour (or effort) with no additional impact on output) and valuing time lost by the average output produced in a day of work, e.g. assuming that the missing or unproductive worker

In this study we have used a cost of time approach. The average cost of a day's employment (\$362.38) was taken from the ABS's average weekly ordinary time earnings data (2021c), and was then factored up by 20 per cent to reflect on-costs such as superannuation, payroll tax and workers' compensation levies.

Rather than use the number of persons reporting this type of harm we have used the number of occasions they report it as occurring on (e.g. days absent, or days on which productivity was reduced). This measure was not available for the 'harm from the gambling of others' calculation. It was assumed that the average days absent/unproductive per person reporting this harm would match that of the at-risk gamblers reporting this impact from their own gambling. This gives an estimated days

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<sup>4</sup> The extent to which willingness to pay for decreases in the risk of premature death increases in time as national incomes increase determines the rate at which the VoSL should be increased over time. Changes in willingness to pay for a good or service as incomes increase are measured using what is known as an income elasticity of demand. Some goods see consumer's willingness to pay increase at slower rate than income, there are what are known as inferior goods and include goods such as mincemeat where demand typically grows slower than income as consumers substitute into more desirable cuts of meat. Others see their demand increase in line with incomes, and some goods (generally those seen as luxuries) increase faster than incomes. International studies have estimated the income elasticity of demand for increased safety as between 0.5 and 1.6, with an average across the studies of 1.16 (Viscusi and Aldy, 2003, Kniesner et al., 2010, and Costa and Kahn, 2004). We have made the slightly conservative assumption that the income elasticity of demand for increased safety is 1.0 and therefore have increased the value of the VoSLY exactly in line with per capita national income.

absent per person reporting the harm of 13.9 as a result of gamblers own gambling, and 19.6 for those reporting that they missed work as a result of someone else's gambling; with the days of under-performance 15.7 days and 35.6 days respectively.

Costing presenteeism also requires an estimate of how much lower productivity was than a typical day at work. There is no data that would support a precise estimate and so we have assumed that productivity is reduced by 50 per cent on these days.

This gives an estimated unit cost of \$435 for each day absent from work, and \$217 for each day on which productivity was reduced

### **Valuing loss of employment**

There are three dimensions included in the overall estimate of the cost of employment lost as a result of one's own problem or risky gambling, or as a result of the gambling behaviours of others:

- Lost income for the person losing their job;
- Job search costs for the person who lost their job; and
- Staff recruitment and training costs for the employer.

If gambling was a 'typical' good where the amount consumed and the risks to health and wellbeing could be reasonably considered to have been taking into account in the consumption decision, then the first two of these costs would be considered purely private and not included in a social cost study. However because the only persons for whom these costs are as a result of their own gambling are problem and at-risk gamblers it is reasonable to treat them as a social cost.

Unit costs of lost income for a person who has lost their job as a result of gambling related impacts, and the individual job search costs are taken from Productivity Commission (1999), updated to 2018 values using the change in the CPI (ABS, 2021a).

The average unit cost of recruitment and training of a new staff employee is taken from the Bureau of Infrastructure, Transport and Regional Economics' estimates of the cost of road crashes (BITRE 1996), updated to 2018 values by the authors using the change in the CPI (ABS, 2021a).

On average 'at-risk' gamblers who reported having lost their job as a result of the impacts of their own gambling reported 4 job losses over the year. For those harmed by the gambling of others, the average number of jobs lost was 6. As the costs arise from the loss of a job, rather than from the number of individuals affected, this cost was calculated based on a number of occasions basis.

### **4.6 Calculating the cost of relationship and family harms and gambling related crime**

Data on both the number of individuals reporting being a victim or perpetrator of crime, and the number of occasions on which the criminal behaviour occurred were used in calculating the costs of gambling related crime.

The 'people impacted' estimate for victim of crime costs for both victims of gambling related violence and victims of property crime was calculated based on the number of occurrences.

Criminal justice related costs were estimated based on the number of persons reporting this type of harm.

It was assumed that 20 per cent of victims of violent gambling attributable crime would report the incidents to police and therefore give rise to police costs and 25 per cent of perpetrators of property crime would be reported to police for at least one of their offences. These are below the average reporting rates for assault and theft in Australia and therefore may be conservative. It was also assumed that of the incidents reported to police 35 per cent will result in a person being proceeded against in court and of those proceeded against in court we have assumed that 50 per cent were given a custodial sentence.

The unit costs used to estimate the cost of gambling-attributable violence, and gambling related crime (assumed to be financial crime) are all taken from the recent study estimating the costs of alcohol to the Northern Territory in 2015/16 (Smith, Whetton and d'Abbs, 2019), updated to 2018 values.

Full details of the methods used and data sources are available in that report, but the key approaches are summarised below.

### **Police Costs**

Real expenditure on police service costs in the Northern Territory was \$283.8 million in 2015/16 (SCRGSP 2017), or \$306.8 million if the user cost of capital is included<sup>5</sup>. This total cost was updated to 2018 values using the change in the CPI (ABS, 2021a).

Only those costs related to crime are relevant to this study, so the overall police cost needs to be scaled down to exclude activities not related to the investigation or prosecution of crimes, or the processing of alleged offenders. Smith et al. (2014) estimate that approximately 80 per cent of police costs are spent on activities related to crime, based on 2011 data from the NSW police service. Alternatively, drawing on allocation of police service budget to specific activity categories in WA Police 2014 Annual Report Whetton and colleagues estimated that 64 per cent of police time was crime related (Whetton et al., 2016).

The central estimate in Smith, Whetton and d'Abs drew on this latter activity share as relatively more conservative, giving a total police cost related to crime of \$195.7 million in 2015/16 (2019).

Police costs were allocated between different types of offences using a weighting for expected time required for investigation and processing of an alleged offence, derived from court data on the average length of a trial (ABS, 2017b) as a reasonable proxy for the average complexity of cases by offence category. Police costs are allocated between principal offence categories based on this **weighted** frequency of individuals charged.

'Acts intended to cause injury' (i.e. assault) and 'Theft and related offences' had very similar relative complexity weightings, and so the same average cost of police time per reported offence was used for both types of gambling-attributable crime; \$11,546.

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<sup>5</sup> Any costs incurred by the Australian Federal Police have been excluded as there is no reliable way to estimate the alcohol attribution on the AFP's activities.

### **Court Costs**

Total recurrent expenditure on criminal courts in the Northern Territory was \$13.2 million for higher courts and \$15.4 million for Magistrates courts in 2015/16 (SCRGSP, 2017). These costs were updated to 2018 values using the change in the CPI (ABS, 2021a).

Australian data on the number of cases finalised and the mean duration of the case from the ABS publication 'Criminal Courts 2015-16, Cat No. 4513.0' (2017a) was used to estimate the number of 'defendant days' for each offence category by level of court (higher or magistrates). These totals were used to allocate Northern Territory criminal court costs between higher courts and magistrates courts, and within each level of court to allocate costs between offence categories.

Applying the weightings for level of court and average days to the total estimated 2018 court costs gives an average cost per alleged gambling related offence prosecuted in court of \$3,035 per assault and \$1,920 per property crime.

The costs of legal representation is not included in these court system cost estimates.

### **Correction System Costs**

The on-going net recurrent costs (including depreciation of capital items) of corrections facilities in the Northern Territory cost society a total of \$191.8 million in 2015/16 (SCRGSP2017).

There are other less direct costs and offsetting benefits associated with imprisonment, with researchers at the AIC identifying the following additional forms of cost and offsetting savings (Morgan and Althorpe 2014):

Unfortunately, many of these costs cannot be accurately quantified from the available data, with the estimate of the net costs of imprisonment restricted to the following:

- Net recurrent costs of corrections facilities: **\$115,252** per detainee year;
- Lost productivity of prisoners in paid work: **\$30,982**/male prisoner and **\$13,883**/female prisoner per detainee year;
- Workplace disruption and costs of recruiting replacement employees **\$2,925**/male prisoner and **\$1,311**/female prisoner per detainee year;
- Lost productivity of prisoners in unpaid household work: **\$19,613**/male prisoner and **\$35,016**/female prisoner per detainee year;
- Prison assaults (on both staff and prisoners): **\$52** per detainee year; and,
- Reduced government payments (offsetting saving): **-\$2,848**/male prisoner and **-\$3,363**/female prisoner per detainee year.

Combining the six sources of cost and offsetting benefit from imprisonment that were able to be quantified gives a total estimated net annual cost of imprisonment of \$165,976 for male prisoners and \$162,152 for female prisoners. These values were updated to 2018 values by the authors using the change in the CPI (ABS, 2021a). It is not known whether the net costs would be higher or lower if all of the unquantifiable costs were able to be quantified.

In calculating the per person court and correction system cost it was assumed that 35 per cent of offenders where the offence is reported to police will be proceeded against in court and 50 per cent of those proceeded against in court would receive a custodial sentence.

These median sentence for both 'Acts intended to cause injury' (i.e. assault) and 'Theft and related offences' were 0.7 years, and it was assumed that this would be the average time served for those sentenced to custody as a result of gambling related crime.

Combining these factors gives an average unit cost for court and correction system costs of \$64,254.

### Costs to Victims of Crime

As well as the costs arising from the investigation of crime, the administration of justice and the detention of offenders, there are also substantial costs incurred by the victims of crime.

The most comprehensive set of estimates of the costs of crime have been compiled by researchers at the Australian Institute of Criminology (Smith et al., 2014). Drawing together information from a range of Australian and international sources on the costs of various types of personal and household crime, they distinguish between medical costs, lost output, property loss, property damage, and intangible cost (e.g. pain and suffering).

Unit costs for each cost category were converted to 2015/16 values for the cost of alcohol report. Table 8 sets out the unit costs to victims of personal crime (assault) and the unit costs for victims of property crime such as theft from Smith, Whetton and d'Abbs (2019). For this report these costs have been updated to 2018 values by the authors using the change in the CPI (ABS, 2021a) and then weighted averages were calculated for each of assault and property crime.

**Table 8:** Unit costs to victims of assault and property crime from Smith et al. converted to 2018 values

<b>Assault</b>			
	<b>Medical costs (\$)</b>	<b>Lost output (\$)</b>	<b>Intangible costs (\$)</b>
Assault			
Hospitalised	13,017	36,338	14,738
Injured, treatment other than hospital injured no treatment	774	3,038	3,150
no injury	.	754	754
		45	450
<b>Property Crime</b>			
	<b>Property loss &amp; property damage (\$)</b>	<b>Lost output (\$)</b>	<b>Intangible costs(\$)</b>
Burglary - Completed	2,009	91	1,193
Burglary - Attempted	246	60	794
Motor vehicle theft	1,414	81	1,058
Theft from a vehicle <sup>b</sup>	4,567	183	2,598
Malicious property damage	1,193	66	864
Other theft	652	49	1,415

Note: <sup>a</sup> The unit cost used for burglary is that for burglaries of private residences, as we do not have an estimate for the number of victims of burglaries of commercial properties.

<sup>b</sup> These costs are the average for thefts from private and from commercial vehicles.

For violent crime, the costs were allocated based on the number of victims not the number of assaults following the approach to identifying costs in Smith and colleagues (2014). As most victims of gambling related violence report multiple assaults (an average of 9.6 assaults per 'at risk gambler' harmed as a result of their own gambling, and an average of 41 assaults for a person harmed by another's gambling) this approach is likely to be conservative.

For property crime the number of occurrences was used for the frequency of harms to victims.

The average victim of crime cost was \$3,404 for assaults if all forms of assault (including verbal assaults) weighted by their frequency are included; and \$6,065 if costs were calculated on the basis of the weighted average of physical assaults. These were used as the upper and lower bounds.

The average victim of crime cost for property crime was \$861 if it was assumed that all gambling related property crime was in the least severe category "other theft" and \$2,529 if the weighted average for all property crime was used. These were used as the upper and lower bounds.

#### **4.7 Calculating the harm minimisation costs**

In theory there are a range of expenditures by government related to mitigation of harms from gambling and the management of gambling related activities.

However, due to the integration of regulatory and enforcement functions between gambling and liquor it was not possible to separate out the costs specific to local gambling.

Similarly, policy functions are integrated between liquor and gambling, and span both local gambling by NT residents and policy issues related to those firms based in the NT providing on-line gambling services to people across Australia. Again, this means that it is not possible to identify the local NT gambling specific policy costs.

It is possible to identify the grants made through the Community Benefits Fund (CBF) for amelioration services, or research, related to gambling (Department of Attorney General and Justice, 2019).

Amelioration activities targeted at gambling related harms funded out of the CBF are:

- Amity Community Services Incorporated, \$671,170 in 2018-19 problem gambling assessment and counselling services, provision of the Gambling Counselling Helpline, and delivery of information through its website.
- Somerville Community Services, \$672,849 for provision of financial counselling services to problem gamblers.
- Holyoake Alice Springs Incorporated received \$77,000 in 2018-19 for its Sandplay in Schools program that seeks to provide support for younger children that are affected by harmful behaviours, including gambling.
- Aboriginal Resource and Development Services received \$85,201 in 2018-19 for its Yolŋu Gambling Dialogues project.

- \$29,779 towards Gambling Help Online, the national on-line counselling and support service for gambling problems.

Gambling related research projects funded through the CBF are:

- Australian National University, Amity Community Services Inc and Menzies School of Health Research (\$393,860 in 2018-19) to develop and pilot a health promotion initiative addressing problem gambling in three remote indigenous communities.
- Menzies School of Health Research (\$347,500 in 2018-19) to undertake the 2018 Northern Territory Gambling Prevalence and Wellbeing Survey that also included a qualitative follow-up study that looked at both the 2015 and 2018 Prevalence Surveys.
- \$30,680 as a contribution to Gambling Research Australia, the national approach to funding gambling research.

This gives a total of \$2,308,039 spent on gambling harm amelioration and gambling research.





## **CHAPTER 5: SUMMARY & CONCLUSIONS**

This analysis has identified substantial costs to the NT arising from the impact of gambling on 'at risk' gamblers themselves and from harm arising from the impact of the gambling of others.

Total quantifiable costs of gambling in the NT are estimated to be between \$164.9 million and \$381.3 million. This represents a cost per 'at risk' gambler of between \$9,700 and \$22,500 in 2018. The central estimate is \$190.1 million, or \$11,223 per 'at risk' gambler.

The impacts are roughly evenly split between harms experienced as a result of at risk gamblers own gambling (\$80.8-\$158.7 million) and the impact of the gambling of others (\$84.2-\$222.6 million).

The relatively wide range between the low bound and high bound estimates are partly as a result of the uncertainty of the scale of the harms, but also reflect uncertainties in the most appropriate cost to place on individual harms.

Whilst the harms from gambling are significant, they are smaller than the costs of some other risk factors such as alcohol. The estimated social cost of alcohol consumption to the NT in 2015/16 was \$1.39 billion (low bound \$1.18 billion, high bound \$2.98 billion (Smith, Whetton and d'Abbs, 2019)). Converting this to 2018 values this would suggest the harms from gambling are around one eighth of the harms from alcohol.

Our estimates of the quantified harms from gambling are likely to be a relatively conservative estimate as there were several harms that could not be quantified and or valued. The most significant potential gap is the lack of estimates of the impact of gambling on children, as the prevalence survey only collected data from adults. To the extent that data exists on the impacts on children then the potential impacts appear significant amongst affected children. For example, 2,118 adults reported that "kids missed out on school or something" as a result of the impacts of gambling.



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