

# **Gambling in New Zealand: A National Wellbeing Analysis**

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*A report prepared for the Gaming Machine Association of New Zealand*

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### **Acknowledgements**

We would like to thank all those in the industry, government and community who met with us, reviewed drafts of this report and generously shared their valuable insights and experiences with us as this report was being prepared. We would also like to thank the independent referees, Professor Paul Delfabbro of the University of Adelaide and Professor Lew Evans of Victoria University of Wellington for their invaluable contributions on drafts of this report. Responsibility for the final product rests solely with the authors, TDB Advisory Ltd (TDB).

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# Table of contents

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<b>Table of contents</b> .....	<b>3</b>
<b>Glossary</b> .....	<b>5</b>
<b>Key findings</b> .....	<b>6</b>
<b>Summary report</b> .....	<b>7</b>
Introduction .....	7
Gambling in New Zealand .....	7
Framework.....	9
Costs and benefits quantifiable in monetary terms.....	10
Costs and benefits not quantifiable in monetary terms.....	12
Conclusions .....	13
<b>1 Introduction</b> .....	<b>15</b>
1.1 The context for this study.....	15
1.2 Historical context of gambling in New Zealand .....	16
1.3 Gambling today.....	18
1.4 Data on gambling in New Zealand.....	19
1.5 Structure of this report .....	19
<b>2 Gambling in New Zealand</b> .....	<b>20</b>
2.1 Introduction .....	20
2.2 Gambling participation .....	20
2.3 Regulatory environment.....	23
2.4 The gambling industry .....	24
2.5 Industry summary .....	29
2.6 Gambling harm .....	30
2.7 Harm minimisation and prevention .....	34
2.8 Offshore online gambling .....	36
<b>3 Framework</b> .....	<b>37</b>
3.1 Introduction .....	37
3.2 National cost-benefit analysis .....	37
3.3 Application of NCBA to gambling.....	41
<b>4 Costs and benefits quantifiable in monetary terms</b> .....	<b>44</b>
4.1 Introduction .....	44
4.2 Consumption-side .....	44
4.3 Production-side.....	54
4.4 Gambling duties.....	64
4.5 Overall estimates of the costs and benefits quantifiable in monetary terms .....	65

<b>5</b>	<b>Costs and benefits not quantifiable in monetary terms</b>	<b>66</b>
5.1	Introduction	66
5.2	Costs not quantifiable in monetary terms	66
5.3	Benefits not quantifiable in monetary terms	80
5.4	Overall assessment of non-quantifiable costs and benefits of gambling	81
<b>6</b>	<b>The overall costs and benefits of gambling</b>	<b>83</b>
6.1	Sensitivity analysis	84
<b>7</b>	<b>Conclusions</b>	<b>86</b>
<b>8</b>	<b>Bibliography</b>	<b>89</b>
	<b>Appendix 1: The Problem Gambling Severity Index (PGSI)</b>	<b>94</b>
	<b>Appendix 2: Prevalence of gambler types by country</b>	<b>95</b>
	<b>Appendix 3: Estimate of expenditure by gambler types</b>	<b>98</b>
	<b>Appendix 4: Estimates of price elasticities in the literature</b>	<b>101</b>
	<b>Appendix 5: 2019 Class 4 grants breakdown</b>	<b>102</b>

# Glossary

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Adult	Person over the age of 18.
Consumer surplus	The net benefit obtained by consumers because they are able to purchase a product for a price that is less than the amount they would be willing to pay.
DIA	Department of Internal Affairs.
EGM	Electronic gaming machine.
Expenditure	The net amount spent by people who gamble, that is, the total amount wagered less the amount returned in winnings.
GMANZ	Gaming Machines Association of New Zealand.
Gross benefits	Total benefits received.
Low-risk gambler	Gamblers with a score between 1 to 2 on the PGSI. This group will have answered 'never' to most of the indicators of behavioural problems in the PGSI and are unlikely to have experienced any adverse consequences from gambling.
MoH	Ministry of Health.
NCBA	National cost-benefit analysis.
Net benefits	Gross benefits minus costs.
Net proceeds	Revenue received by the gambling operator minus costs, levies and taxes.
Moderate-risk gambler	Gamblers with a score between 3 and 7 on the PGSI. This group indicate a moderate level of behavioural problems related to their gambling and may or may not have experienced adverse consequences from gambling.
PGSI	Problem Gambling Severity Index.
Problem gambler	Gamblers with a score between 8 and 27 on the PGSI. This group have experienced adverse consequences from their gambling and may have lost control of their behaviour.
Producer surplus	The net benefit obtained by suppliers because they are able to sell a product for a price that is higher than the costs, including the cost of capital, that they incur.
Revenue	Return to the gambling operator — i.e., total amount wagered less prizes. Also known as gross winnings. This the same as the net amount spent by gamblers (expenditure).
Turnover	The total amount wagered by people who gamble.

## Key findings

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- The costs relating to gambling harm are subject to considerable research. The benefits of gambling however are often overlooked. Overlooking the wellbeing benefits results in a one-sided analysis that is insufficient as a basis for sound public policy.
- Assessing the overall wellbeing effects of gambling requires a rigorous analysis of both the costs and the benefits.
- This study uses National Cost Benefit Analysis (NCBA) to provide an overall assessment of the wellbeing effects of gambling in New Zealand. Gambling is analysed in aggregate and includes the four main legalised gambling types: Lotto; TAB; Class 4; and Casinos.
- As is standard in NCBA, costs and benefits are assessed in two categories: those that can be reliably quantified in monetary terms and those that cannot. All calculations are GST exclusive.
- The quantifiable costs and benefits of gambling include:
  - Net enjoyment benefits to the 2.8 million New Zealanders who gamble of around \$650 to \$1,070 million per annum.
  - Net benefits to suppliers of gambling of around \$810 million per annum. These benefits are largely distributed to the community.
  - Net benefits to the Government from gambling duties (net of the Problem Gambling Levy and gambling fees) of around \$280m per annum.
- The non-quantifiable costs and benefits of gambling include:
  - Harm-related costs that can include health costs; relationship costs; work/study costs; culture-related costs; and crime-related costs.
  - Wellbeing improvements to New Zealanders from increased funding of sport, art and community activities.
  - Wellbeing adjustment costs avoided, associated with the losses of employment that would arise if gambling were not permitted.
- Analysis of harm-related costs illustrates that these cannot be reliably quantified. Attempts to do so without adequately taking into account the effects of comorbidities and the complexities around the direction of causation of observed harms are arbitrary, subjective and unfit for decision-making. It is however evident that harm-related costs can be high at the individual level, with the harms concentrated around a small population of problem and moderate-risk gamblers.
- Together, the quantitative and qualitative analysis in this report assesses the overall wellbeing effects of gambling in New Zealand. All of these costs and benefits are relevant to informed decision-making in the sector.
- The government and industry have important roles to play in providing a balance between the costs and benefits of gambling and ensuring the costs of gambling are minimised and the benefits are maximised.

# Summary report

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## Introduction

TDB Advisory Ltd (TDB) has been commissioned by the Gaming Machine Association of New Zealand (GMANZ) to undertake an assessment of the national wellbeing effects of gambling in New Zealand. GMANZ was concerned that existing research was largely one-sided, focusing solely on harm-related costs of gambling and ignoring the benefits to wider New Zealand.

The purpose of this study is to provide a balanced and where possible quantified assessment of the overall wellbeing effects - both the costs and the benefits - of gambling in New Zealand. The framework used is national cost-benefit analysis (NCBA). The report follows the following structure:

- Section 2 presents an overview of gambling in New Zealand, including information on gambling participation; the regulatory environment; the gambling industries; gambling harm; and harm prevention and minimisation.
- Section 3 establishes our framework for analysis, providing information on NCBA, the measures of consumer and producer surpluses and the application of this framework to gambling in New Zealand.
- Section 4 analyses the costs and benefits that are quantifiable in monetary terms, analysed in three categories: consumption-side; production-side; and gambling duties.
- Section 5 assesses the costs and benefits that are not reliably quantifiable in monetary terms.
- Section 6 summarises the overall costs and benefits of gambling and presents the results of a sensitivity analysis of the quantifiable results to the key underlying assumptions.
- Section 7 presents our conclusions.

## Gambling in New Zealand

Gambling is a popular form of entertainment, with around 7 in 10 New Zealand adults taking part in some form of gambling at least once a year.<sup>1</sup> In summary:

- 6 in 10 adults in New Zealand play Lotto once or more a year;
- 1 in 10 bet on racing or sports at the TAB;
- 1 in 10 play Class 4 gaming machines (pokies); and
- 1 in 15 gamble at a casino.

In 2019, aggregate expenditure<sup>2</sup> on the four gambling types totalled \$2,400 million (GST inclusive).

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<sup>1</sup> <https://www.hpa.org.nz/research-library/research-publications/gambling-participation-results-from-the-2018-health-and-lifestyles-survey>

<sup>2</sup> Expenditure on gambling is the net amount spent by people on gambling, that is, the total amount wagered (turnover) less the amount returned in winnings. Expenditure by gamblers is equal to the revenue of the gambling providers.

The primary piece of legislation that regulates gambling is the Gambling Act, 2003. Regulation of racing and sports betting is administered separately under the Racing Act, 2020.

The two main agencies with roles in the gambling sector in New Zealand are the Department of Internal Affairs (DIA) - the industry regulator; and the Ministry of Health (MoH) - which is responsible for minimising gambling harm.

The four main types of legalised gambling in New Zealand are covered in this report:

- New Zealand Lotteries products (Lotto), including national lotteries and scratch to win products. Lotto products are sold in-store in approximately 1,500 retail outlets and online via the Lotto website and MyLotto app;
- TAB racing and sports betting (TAB). TAB betting takes place in-person at one of 580 outlets or online via the TAB website or the TAB app;
- Class 4 electronic gaming machines (Class 4), also known as 'pokies', operated in bars, pubs, clubs and the TAB. Class 4 gambling is operated by not-for-profit corporate societies (traditional gaming societies and clubs) and the TAB<sup>3</sup>; and
- Casino gambling (Casinos), including on-premise electronic gaming machines and casino table games in six casinos. Unlike the other three gambling types, casinos are for-profit, private entities.

The table below presents a summary of the key financial statistics for each gambling type. Note that not all casino data is publicly available. Accordingly, the Casino statistics below include TDB estimates (calculated in Section 4).

**Table 1: Key financial statistics for each gambling type, 2019, \$ million**

	Lotto	TAB	Class 4	Casinos
Turnover	1,175	2,258	10,364	5,600
Prizes	645	1,926	9,440	4,984
Return to players (prizes / turnover)	0.55	0.85	0.91	0.89
Revenue	530	332	924	616
<b>Operating costs</b>				
Retailer or venue payments	73	NA	128	NA
Other operating costs	70	140	125	320
Total operating costs	143	140	254	320
<b>GST, duty &amp; levy</b>				
GST	69	44	121	81
Gambling Duty	65	13	185	20
Problem Gambling Levy	2	2	12	3
Total taxes and levy	136	58	318	104
Net proceeds (revenue - costs - (GST duty & levy))	252	134	353	192
Distribution of net proceeds	Distributed to community	Applied to race industry or distributed to sports	Distributed to community or applied for club benefit	Reinvested or distributed to shareholders

<sup>3</sup> The TAB operates both racing and sports betting and Class 4 electronic gaming machines. This report employs the same approach as the regulator, where discussion of 'TAB' refers to racing and sports betting, while Class 4 electronic gaming machines operated by the TAB are captured within 'Class 4'.



Net proceeds (revenue less costs, taxes and levies) generated in 2019:

- Lotto net proceeds were \$252m, 100% of which was distributed to the community;
- TAB net proceeds were \$134m, 90% of which was applied to the racing industry and 10% distributed to sporting organisations;
- Class 4 net proceeds were \$353m, 100% of which was either distributed to the community or, in the case of Class 4 gaming machines in clubs and the TAB, applied for club benefit; and
- Casinos net proceeds were estimated to be \$192m, which was either reinvested into the business or distributed to shareholders.

Gambler behaviour is assessed in New Zealand using the Problem Gambling Severity Index (PGSI), which categorises gamblers as: non-problem gamblers; low-risk gamblers; moderate-risk gamblers; and problem gamblers.

For the significant majority of participants, gambling is one of many different forms of entertainment. For a small portion of participants, however, gambling can lead to harm-related costs. Based on the National Gambling Study<sup>4</sup> and 2019 population data, there are approximately:

- 961,000 non-gamblers (30% of adults);
- 2,613,000 non-problem gamblers (68% of adults);
- 177,000 low-risk gamblers (4.6% of adults);
- 69,000 moderate-risk gamblers (1.8% of adults); and
- 8,000 problem gamblers (0.2% of adults) in New Zealand.

Harm-related costs are not incurred by 2,613,000 non-problem gamblers, while the 177,000 low-risk gamblers are unlikely to be experiencing harm. Where adverse consequences are reported for this low-risk group, they tend to be very mild (i.e., reduction of available funds or time for other activities or minor psychological reactions like regret<sup>5</sup>).

Importantly, there are also around 69,000 moderate-risk gamblers in New Zealand, who may or may not experience gambling harm and around 8,000 problem gamblers, who do experience gambling harm (and may have lost control of their behaviour). Gambling harm can also be incurred by third parties, including 'affected others' (i.e., partners, children, parents, siblings); and, to some extent, others in society.

Harm minimisation and prevention is a key role of each of the gambling operators. Key, sector-wide requirements include age restrictions, venue admission policies and licensing by the regulator. Each gambling operator also has sector-specific harm-minimisation and prevention policies.

## Framework

This report assesses the effects of gambling on New Zealanders' wellbeing using national cost-benefit analysis (NCBA), a well-established means for assisting social decision making. NCBA assists in understanding the relative social costs and benefits of an activity or policy, as well as providing a logical

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<sup>4</sup> <https://www.hpa.org.nz/research-library/research-publications/gambling-participation-results-from-the-2018-health-and-lifestyles-survey>

<sup>5</sup> Delfabbro et al. (2020a).

and methodological way to organise information. NCBA is the New Zealand Treasury's recommended approach for assessing the wellbeing effects of an activity or a policy.<sup>6</sup>

Under NCBA, costs and benefits which are able to be quantified in monetary terms are quantified, while those costs and benefits which are not able to be rigorously and reliably quantified in monetary terms are incorporated qualitatively.

This NCBA of gambling in New Zealand:

- assumes a counterfactual where there is no Lotto, TAB, Class 4 or casinos in New Zealand and online gambling does not take place;
- treats gambling in aggregate, rather than looking at the different gambling types individually, due to the lack of good information on the substitutability between the different gambling types;
- uses the mainstream economic concepts of consumer and producer surplus to calculate monetary costs and benefits; and
- only incorporates costs and benefits that would not occur in the counterfactual, and therefore excludes GST (all NCBA figures are GST exclusive).

## Costs and benefits quantifiable in monetary terms

A large portion of the costs and benefits that arise from gambling can be quantified, falling under the following three categories: consumption-side; production-side; and government.

Our consumption-side analysis focuses on the costs and benefits to individual gamblers, including the enjoyment benefits experienced by the 7 out of 10 New Zealand adults who chose to gamble recreationally each year. The nature of this enjoyment varies by individual and by game type and can include entertainment, socialising; relaxation; excitement; and the dream of winning the jackpot.

The value of this enjoyment is known as consumer surplus and can be quantified in NCBA. We make the assumption that moderate-risk and problem gamblers receive no benefits from gambling and find:

- gross benefits to those who gamble are in the range of \$2,740 to \$3,160 million p.a.;
- quantifiable costs to those who gamble are around \$2,090 million p.a.; resulting in
- a net quantifiable benefit to gamblers of around \$650 to \$1,070 million p.a.

This net benefit is not a money flow, per se, rather can be thought of as a monetary valuation of the net enjoyment value of gambling to the majority of participants, which is found to be substantial.

Just as gamblers receive net benefits from the consumption of gambling, producers receive net benefits from supplying gambling services. A particular feature of the gambling industry in New Zealand is these net benefits are largely distributed or applied to the community (sports, arts, community activities and clubs).

The net benefits on the production-side are the net proceeds (revenue minus costs, levies and taxes) generated by each gambling type, less the cost of capital. This amount is known as producer surplus.

Included in the production-side costs are gambling fees (\$24m, p.a. charged to Class 4 and Casinos) and the Problem Gambling Levy (\$19m, p.a. levied on all gambling operators). Gambling fees charge

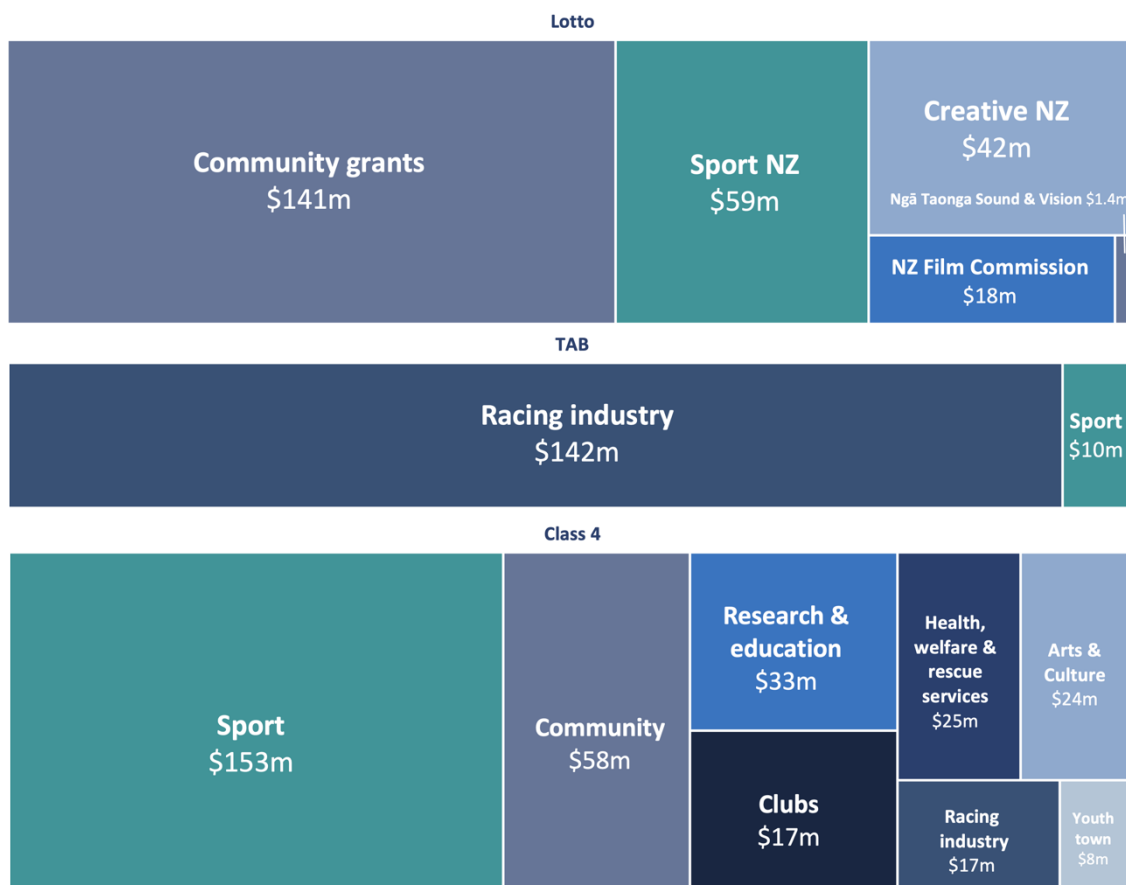
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<sup>6</sup> See <https://www.treasury.govt.nz/information-and-services/state-sector-leadership/investment-management/plan-investment-choices/cost-benefit-analysis-including-public-sector-discount-rates>

gambling operators with the full administration and regulation costs incurred by the DIA and Gambling Commission, while the Problem Gambling Levy levies operators with the cost incurred by the Ministry of Health relating to its integrated gambling strategy focused on public health.

Deducting total costs to producers from total revenue gives an estimated production-side net benefit of \$810 million p.a. In the case of Lotto, TAB and Class 4, these benefits accrue to sports, arts and community groups. The recipients and 2019 distribution amounts are presented in Figure 1 below.

**Figure 1: Distributions from not-for-profit gambling sectors, 2019, \$ million**



The final category of quantifiable benefits are those that accrue to the government (and thus New Zealanders as a whole) through gambling duty revenue. These duties include lottery duty; betting duty; gaming machine duty; and casino duty. While gambling fees and the Problem Gambling Levy are specifically designed to recover gambling-related costs incurred by the Government, gambling duties are not targeted to specific government activities, instead they generate general government revenue.<sup>7</sup>

Gambling duties generate significant government revenue totalling around \$280m, with the biggest portion by a substantial margin paid by Class 4. This surplus represents \$280m of funds available for the Government to contribute to the wellbeing of New Zealand that would not be collected in the absence of gambling.

Summing the quantifiable net benefits on the consumption-side, production-side and gambling duties gives total quantifiable net benefits of gambling to New Zealanders' wellbeing of around \$1,740m or \$2,160m p.a.<sup>8</sup>

<sup>7</sup> Gambling duties could be compared to the taxes on alcohol or cigarettes – sometimes referred to as “sin taxes”.

<sup>8</sup> These calculations are likely to underestimate the monetary benefits by assigning no benefits to moderate-risk gamblers and by not allowing for the adjustment costs and black-market costs that would arise if gambling was made illegal.

The robustness of the above quantitative findings was evaluated by examining the effects of using alternative values for the key assumptions underlying the analysis: the price of gambling; price elasticity of demand; proportion of gambling expenditure accounted for by moderate-risk and problem-gamblers; and cost of capital.

Overall, sensitivity analysis and stress testing suggest the quantifiable net benefits result of around \$1,740m to \$2,160m p.a. to be relatively robust. While the results of the NCBA are most sensitive to the price assumption, even with a significantly lower price assumption, the decrease in net benefits is not great, between \$170 and \$275m p.a.

## Costs and benefits not quantifiable in monetary terms

As is standard in NCBA, we have not attempted to quantify in monetary terms effects that lack a sufficient evidence base to provide reliable estimates of the costs and benefits – rather these effects are analysed qualitatively in this section.

Non-quantifiable costs relating to gambling include different forms of harm-related costs: health costs; relationship costs; work/study costs; culture-related costs; and crime-related costs. These costs can be incurred by the individual; affected others; and, to the extent that work/study and crime-related costs occur, others in society.

Unlike the consumption-side, production-side and gambling duty costs and benefits which can be calculated using orthodox economic methodology, the harm-related costs of gambling in New Zealand cannot be reliably quantified.<sup>9</sup> The reasons for an inability to quantify these costs include:

- Comorbidities – For a lot of people with gambling problems, gambling is not their only problem. ‘Comorbidity’ refers to the presence of more than one disorder in the same person. Around 90% of problem gamblers have at least one other mental-health diagnosis.<sup>10</sup> This, alongside the issue of causation below makes attribution of harm-related costs to gambling as opposed to other disorders highly problematic;
- Causation – Did the gambling cause the problem or did the problem cause the gambling? Comorbid disorders can have complex relationships, whereby, for example: one disorder can cause the other; both disorders share a separate cause; both disorders are independent of each other; or one disorder protects against the other. It can even be the case that heavy gambling is a coping mechanism, a symptom of harm rather than a cause;
- Valuation – If it were possible to calculate the portion of harm-related costs attributable to gambling alone, the process of valuing these harms is largely subjective, requiring debatable, if not arbitrary assumptions; and
- Data sufficiency – Further to the above issues, there is not currently enough reliable data to properly quantify harm related costs in New Zealand.

Attempts to quantify harm-related costs from gambling in New Zealand thus far have been flawed, in large part due to the issues above. Browne et al. (2017), for example, makes no adjustment for comorbidities or causation, alongside strong valuation assumptions on breadth and range of harms. In Browne et al. (2020), the authors acknowledge these fundamental issues in the Browne et al. (2017) methodology, outlining the requirement for new and amended approaches of assessing gambling harm.

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<sup>9</sup> American economist Douglas Walker goes as far as to describe social cost estimates of gambling harm as “arbitrary and useless.” Walker (2003).

<sup>10</sup> <https://www.ranzcp.org/news-policy/policy-and-advocacy/position-statements/problem-gambling>

Regardless of whether they can be quantified, our qualitative analysis highlights that these harm-related costs at the individual level can be high, though are concentrated around a small population of problem gamblers (approx. 8,000 people) and moderate-risk gamblers (approx. 69,000 people).

The non-quantifiable benefits arising from gambling include:

- wellbeing improvements arising from the increased funding of sport;
- benefits from increased funding to art and community activities; and
- the adjustment costs associated with the employment losses that are avoided (compared to the counterfactual where gambling is banned).

## Conclusions

A balanced assessment of the wellbeing effects of gambling in New Zealand incorporates the quantifiable costs and benefits of gambling and the non-quantifiable costs and benefits. Our assessment of these costs and benefits and the overall wellbeing effects of gambling in New Zealand is summarised in Table 2 below.

**Table 2: National Wellbeing Cost-Benefit Analysis of Gambling**

National Wellbeing Cost-Benefit Analysis of Gambling in New Zealand					
Quantifiable in monetary terms:					
Gross benefits	p.a., \$m	Quantifiable costs	p.a., \$m	Quantifiable net benefits	p.a., \$m
<b>Consumption-side</b>					
Enjoyment benefit to gamblers:	2,740 to 3,160	Quantifiable cost to gamblers:	2,090	Consumer surplus:	650 to 1,070
<b>Production-side</b>					
Revenue (excl. duties):	1,800	Costs to gambling operators	990	Producer surplus:	810
<b>Gambling duties</b>					
Gambling duty revenue:	280	Not applicable	-	Gambling duty surplus:	280
<b>Total</b>					
Total quantifiable benefits:	4,820 to 5,240	Total quantifiable costs:	3,080	Total quantifiable net benefits:	1,740 to 2,160
Not quantifiable in monetary terms:					
Non-quantifiable benefits		Non-quantifiable costs			
Wellbeing benefits from increased sports funding		Gambling harm-related costs, including:			
Wellbeing benefits from increased arts funding		– Health costs			
Wellbeing adjustment costs avoided		– Relationship costs			
		– Work/study costs			
		– Culture-related costs			
		– Crime-related costs			

We find substantial quantifiable net benefits to New Zealanders' wellbeing on the consumption, production and Government sides totalling around \$1,740m to \$2,160m p.a. These quantifiable net benefits must be balanced against the non-quantifiable harm-related costs concentrated around problem and moderate-risk gamblers.

The overall effects on wellbeing of gambling in New Zealand incorporate all the benefits/costs above, and all are relevant to informed decision-making in the sector. The Government and industry both have important roles in providing a balance between the costs and benefits of gambling and ensuring the costs of gambling are minimised.

# 1 Introduction

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## 1.1 The context for this study

TDB Advisory Ltd (TDB) has been commissioned by the Gaming Machine Association of New Zealand (GMANZ) to undertake an assessment of the effects on national wellbeing of gambling in New Zealand.

Gambling is a form of entertainment subject to much debate. Like almost any activity, gambling has costs and benefits to New Zealanders. It provides enjoyment for many, problems for some and is a source of funding for others. An assessment of the overall effects of gambling on New Zealanders' wellbeing requires a balanced, rigorous and evidence-based assessment of these costs and the benefits.

Gambling is subject to substantial academic research both in New Zealand and internationally, with a lot of the research relating to gambling harm and problem gambling.<sup>11</sup> Gambling can be costly to participants and others around them, in more ways than just financially. It is important for the wellbeing of New Zealanders to understand and minimise these costs.

The other side of gambling – the benefits it creates for New Zealanders – receives less attention in the research. In New Zealand around 2.8 million people voluntarily choose to gamble each year.<sup>12</sup> Not every person benefits from gambling, however a substantial number do, including:

- non-problem gamblers who enjoy gambling as a form of entertainment, even if they lose money;
- the recipients of proceeds from Lotto, TAB and Class 4 gambling such as community and sports bodies; and
- the Government (and thus New Zealanders as a whole), from the substantial duty revenue gambling generates.

Despite the benefits that many people derive from gambling, a number of studies of gambling in New Zealand focus only on the costs. For example, Browne et al. (2017) attempted to measure all the harm felt by gamblers (but none of the benefits); while NZIER (2020a) undertook a narrowly focused estimation of the benefits the retail sector might receive if Class 4 gambling was prohibited. This focus on the costs of gambling may be the product of provisions of the legislation, the Gambling Act 2003, which requires the Ministry of Health to minimise harm. While potentially informative to understanding specific areas, focusing on only one side of an activity – i.e., considering the costs without considering the benefits - does not give a balanced or comprehensive perspective on the effects of gambling on New Zealanders' wellbeing.

BERL (2019) for the Department of Internal Affairs (DIA) developed a framework for assessing the costs and benefits of gambling, which was applied in BERL (2020) to the Class 4 sector in New Zealand. While the BERL reports are a step forward in that they considered both the benefits and the costs of gambling, the reports provide largely qualitative and often highly subjective assessments of the magnitudes of the costs and benefits in the gambling sector.

Where this report differs from earlier work in New Zealand is this study considers and quantifies, where possible, the costs and benefits of gambling. This study seeks to provide a balanced and rigorous assessment of the overall wellbeing effects - both the costs and the benefits - of gambling in New

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<sup>11</sup> A portion of the Problem Gambling Levy that is collected from Lotto, TAB, casino and gaming machines in clubs and pubs (Class 4 operators) is dedicated specifically to research into problem gambling and harm.

<sup>12</sup> <https://www.hpa.org.nz/research-library/research-publications/gambling-participation-results-from-the-2018-health-and-lifestyles-survey>



Zealand. Where there is sufficient information, we quantify the costs and benefits in monetary terms. Where there is insufficient information, or the information is not of sufficient quality, we discuss the costs and benefits in qualitative terms. The framework we use for assessing the wellbeing effects is national cost-benefit analysis (NCBA). NCBA is the New Zealand Treasury's recommended approach for assessing the wellbeing effects of an activity or a policy.<sup>13</sup>

## 1.2 Historical context of gambling in New Zealand

In various forms across various cultures, gambling has been a recreational activity for millennia. The first recorded gambling in New Zealand took place on the ships travelling from Europe, where early voyagers bought with them a long lineage of gambling.<sup>14</sup>

Cards, dice and roulette were popular amongst the “plebian” men, while the middle-class partook in sweepstakes, lotteries and raffles (with prizes such as fish and birds to supplement dinner).

The first regular horse-race meetings took place along Petone beach in the 1840s. These meetings led to the appearance of the bookmaker – people who took bets, calculated odds and paid out winnings. The lucrative nature of the activity saw two types of bookmakers emerge: part-time ‘bookies’ who fielded bets from colleagues or friends; and larger operators, working full time from rented rooms in high street. Many ran widely advertised sweepstakes on major races in New Zealand, as well as Australian races like the Melbourne Cup.

Meanwhile, gambling among goldminers of the 1860s was a key form of leisure and social cohesion. Goldminers bet on anything from cockfights and wrestling to skittles and pedestrianism<sup>15</sup>, alongside playing roulette, dice and card games at galas and travelling circuses<sup>16</sup>. Chinese goldminers bought their own hobbies, with smoky gambling dens central to after-hours leisure. Their games included ‘pakapoo’ (a lottery), ‘pai gow’ (dominos) and ‘fantan’ (a casino-like game).

Outside the miners, locals enjoyed gambling, largely on billiards and cards. High-stakes poker schools in the Northern Club in Auckland, Wellesley in Wellington and Fernhill in Dunedin became refuges from the worlds of business, politics and land speculation. Well-off women gambled at the track or played whist, loo or bridge.

In the 1880s, bookmakers faced new competition from totalisators – machines manufactured to speed up the betting process and make it easier for clubs to regulate gambling. Racing clubs were particularly enthusiastic about their use, persuading the Government to regulate rather than ban them in the 1881 Gaming and Lotteries Act.

These first gambling restrictions followed an incident where a bookmaker fled to America with £4,500 of punters’ money bet on the Wellington Racing Cup. The 1881 legislation banned all private gambling and shutdown gambling houses and dens. Totalisators were licensed and lotteries and sweepstakes were restricted. Despite the limitations, underground gambling continued to proliferate, while bookmakers (still legal at this point) became increasingly common.

The subsequent 1910 Gambling Act was probably the high point of the anti-gambling movement. Bookmakers and other forms of gambling were banned and subject to tough penalties. Despite the legislation, gambling on horse races changed little over the next few decades. With a combination of betting through totalisators and illegal bookmakers, the industry grew considerably. By 1948, totalisators were turning over £24 million<sup>17</sup> and generating significant public interest. Following a Royal

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<sup>13</sup> See <https://www.treasury.govt.nz/information-and-services/state-sector-leadership/investment-management/plan-investment-choices/cost-benefit-analysis-including-public-sector-discount-rates>

<sup>14</sup> Curtis (2002). From chapter 5: The Nature of Gambling in New Zealand, a Brief History by David Grant.

<sup>15</sup> Pedestrianism was a 19th-century form of competitive walking, often professional and funded by wagering, from which the modern sport of racewalking developed.

<sup>16</sup> Some legitimate, many corrupt.

<sup>17</sup> While bookmakers reportedly turned over much more.



Commission enquiry and a public referendum, the Government established a Totalisator Agency Board (TAB), whose members the Government appointed but whose profits were returned to the racing and trotting clubs. The TAB began operations in 1950, the first organisation of its kind in the world.

The TAB was immediately financially successful. In 1954 the TAB returned 30 times what it had in 1952. In Australia, Victoria established its own TAB in 1961 based on the New Zealand model, immediately leading to other Australian states establishing counterparts.

Meanwhile, the country's raffles and lotteries were under pressure from some community leaders and national politicians, citing social and moral concerns about gambling's 'expansion'. The most popular lottery in New Zealand up until the early sixties was an Australian sweepstake called Tattersalls. In 1961 the 'Golden Kiwi' lottery was introduced, making a £1.4 million profit in its first year, a third of which the Government received in tax. A portion of the profits was required to be donated to community groups, with a lotteries Board of Control established (as an umbrella over six 'grants boards') to determine how the distributions would be divided. Golden Kiwi lotteries were not nationwide and prize money could not compete with neighbouring Australian lotteries.

It was not until 1987 that 'Lotto' was introduced in New Zealand. Similar to the Chinese game 'pakapoo' and first played in Europe in the 1950s, Lotto was an instant hit in New Zealand. In its first year of operation, punters spent a dollar for every person in the country on Lotto, ranking New Zealand seventh in the world in terms of Lotto expenditure per person. Instant Kiwi soon followed, initially to raise money for the 1990 Commonwealth Games, and continues today.

Gaming machines, then known as 'fruit machines', first entered New Zealand in the 1930s. Located at the back of dairies and milk-bars, gaming machines were particularly popular among the working class. From the 1960s, more sophisticated models began to be imported into New Zealand, largely from Australia. A model known as the 'one-armed bandit' was particularly popular at parlours, sports and social clubs, becoming popular as a tool for fundraising.

By the 1970s and 80s, gaming machines were very popular in New Zealand and there were calls to regulate or even ban them. In 1986, the government regulations permitted their use in hotels, RSAs, and sports and chartered clubs on the proviso that 78 cents in the dollar be returned in prizes, with the remainder (less operating expenses) distributed to nominated charities. By 1992, gaming machines turned over more than \$100 million, and turnover continued to grow each year. Issues surrounding machines' manipulation, theft and fraud occurred, with periodic enquiries by the Department of Internal Affairs.

Gaming machines were legislated under The Gaming and Lotteries Act, 1977, alongside lotteries and housie (bingo). The Act continued the prohibition of bookmaking and largely prohibited gaming for commercial gain – enforcing profits from gaming to be distributed to the community. The racing industry was governed by the Racing Act, 1971, which grants the TAB a monopoly on racing and sports betting. The Act legislated that the profits from all race betting be paid to the racing clubs.

The country's first casino opened its doors in Christchurch in 1994<sup>18</sup> after the passage of the Casino Control Act, 1990. This Act emphasised the tourism, employment and economic development effects of gambling rather than community fundraising – making casinos the first fully commercial (for-profit) form of gaming permitted in New Zealand.

In November 2000, the Department of Internal Affairs initiated 'the Gambling Review' in response to several factors including the high growth of the sector; new technologies; and increased access to electronic and cross-border gambling.<sup>19</sup> Gambling regulation across the three acts governing the sector was also considered disjointed and inconsistent.

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<sup>18</sup> This was a lot later than in Australia, whose first legal casino was established in Tasmania in 1973.

<sup>19</sup> With a perception that these trends have led to increased levels of problem gambling and could be exploited for the purposes of money laundering, fraud and organised crime.

The Gambling Act, 2003 (the Act) combined the Casino Control Act, 1990 and the Gaming and Lotteries Act, 1977 into a single act. Regulation of racing and sports betting continued to be administered separately under the Racing Act, 2003 (now repealed and replaced by the Racing Act, 2020)<sup>20</sup>.

### 1.3 Gambling today

Today around 7 out of 10 New Zealand adults gamble at least once a year.<sup>21</sup> Technology has provided advancements in how various forms of gambling are undertaken; however their underlying nature has remained fairly consistent over time. There are four main types of gambling activity:

- New Zealand Lotteries products including Government national lotteries and scratch-to-win products (Lotto);<sup>22</sup>
- TAB racing and sports betting (TAB);
- Class 4 electronic gaming machines, also known as pokies, operated in bars, pubs, clubs and the TAB (Class 4); and
- Casino gambling, including on-premise electronic gaming machines and casino table games (Casinos).

As is evident above, the TAB operates both racing and sports betting and Class 4 electronic gaming machines. This report employs the same approach as the regulator, where discussion of 'TAB' will refer to racing and sports betting, while Class 4 electronic gaming machines operated by the TAB are captured within 'Class 4'.

Lotto New Zealand runs nationwide lotteries such as Strike, Powerball and Keno, as well as sales of scratch-to-win games called Instant Kiwi. Lotto products can be sold both in-store and online. In this report, all Lotto New Zealand activities are discussed under the single title 'Lotto'.

Racing (thoroughbred, harness and greyhounds) and sports betting<sup>23</sup> in New Zealand is solely provisioned by the TAB, and bets can be made both in-person and online. All racing and sports betting will be referred to in this report as the 'TAB'.

EGMs located in pubs, bars, clubs and TAB venues are categorised in the Gambling Act, 2003 as Class 4 gambling. Class 4 gambling has no online portal, only taking place in-person. This form of gambling will be referred to in this report as 'Class 4'.

New Zealand has six licensed casinos which offer both table games and on-premises EGMs. EGMs in casinos are not included in Class 4 in the Gambling Act, 2003, rather they are regulated as part of casino gambling.<sup>24</sup> As with Class 4, New Zealand-based casinos are not legally allowed to supply online gambling.<sup>25</sup> All onshore casino gambling (table games and on-premise EGMs) will generally be referred to as 'Casinos' in this report.

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<sup>20</sup> With some exceptions, including the operation of Class 4 gaming machines in the TAB and racing clubs.

<sup>21</sup> Health and Lifestyles Survey (2018). In this survey adults are defined as people aged 15 and over.

<sup>22</sup> There are also authorised private lotteries (e.g., Heart Foundation). These fall under Class 2 and Class 3 gambling.

<sup>23</sup> The TAB offers betting on 24 different sports, including Esports (as of March 2020).

<sup>24</sup> There are also some differences between Class 4 EGMs and EGMs in Casinos, including the minimum bet size and the jackpot value.

<sup>25</sup> New Zealanders are, however, allowed to gamble in online casinos that are based offshore. SkyCity operates such an online casino, operated by MT SecureTrade Limited, a company incorporated under the laws of Malta. This is an overseas division of SkyCity's business and is not incorporated in this study.

Other forms of gambling include raffle tickets, sweepstakes with workmates, family and friends, private poker tournaments, housie/bingo and offshore-provided online gambling (discussed later in Section 3 below). Though a number of New Zealanders take part in these activities,<sup>26</sup> the focus of this report is on the four major gambling types discussed above.

## 1.4 Data on gambling in New Zealand

There are two key surveys which provide data on gambling in New Zealand:

1. the National Gambling Study; and
2. the Health and Lifestyles Survey.

The National Gambling Study (NGS)<sup>27</sup> is a New Zealand population representative longitudinal study into gambling, health, lifestyles, and attitudes about gambling. The NGS started in 2012 with an initial randomly-selected national sample of 6,251 people aged 18 years and older, with interviews taking place face-to-face with computer assistance. Participants remaining in the study were then re-interviewed in 2013 (Wave 2), 2014 (Wave 3) and 2015 (Wave 4). The NGS was undertaken by the AUT Gambling and Addictions Research Centre. It was commissioned by the Ministry of Health (MoH) as part of its role as the department responsible for minimising gambling harm. The NGS has not been updated since 2015.

The Health and Lifestyles Survey (HLS)<sup>28</sup> is a biennial survey of health behaviours and attitudes of New Zealanders aged 15 years and over, that began in 2008. The HLS is not specific to gambling and collects information relating to alcohol, tobacco, sun safety, problem gambling and nutrition. HLS data is collected through face-to-face interviews with a random sample of 3,552 people. The HLS is administered by the Health Promotion Agency (a crown agency under the Ministry of Health).

The latest HLS dataset is from 2018, however only summary data from this latest survey has been published to date. Where 2018 HLS data is unavailable, we refer to the 2016 data.

Data from both surveys are referred to in this report. As a survey specific to gambling and a longitudinal study, there are some areas where the NGS has collected data that the HLS does not. In some summary statistics and data on trends over time, the HLS data is used.

Data relating to each of the four gambling operators (Lotto, TAB, class 4 and casinos) is largely sourced from annual reports and the Department of Internal Affairs and represent financial years for each organisation.

## 1.5 Structure of this report

This report is structured as follows. This section, Section 1, provides an introduction to the report. Section 2 provides an overview of gambling in New Zealand. Section 3 outlines the framework for the wellbeing assessment. Section 4 presents our assessment of the costs and benefits of gambling that can be quantified in monetary terms. Section 5 discusses the costs and benefits of gambling that cannot be reliably quantified in monetary terms. Section 6 provides our overall assessment of the costs and benefits while Section 7 provides the conclusions of this report.

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<sup>26</sup> According to the Health and Lifestyles Survey 2016, 27% of adults bought a raffle ticket in 2016 and 14% took part in a sweepstake.

<sup>27</sup> Abbott et al. (2018).

<sup>28</sup> Health Promotion Agency (2019).

## 2 Gambling in New Zealand

### 2.1 Introduction

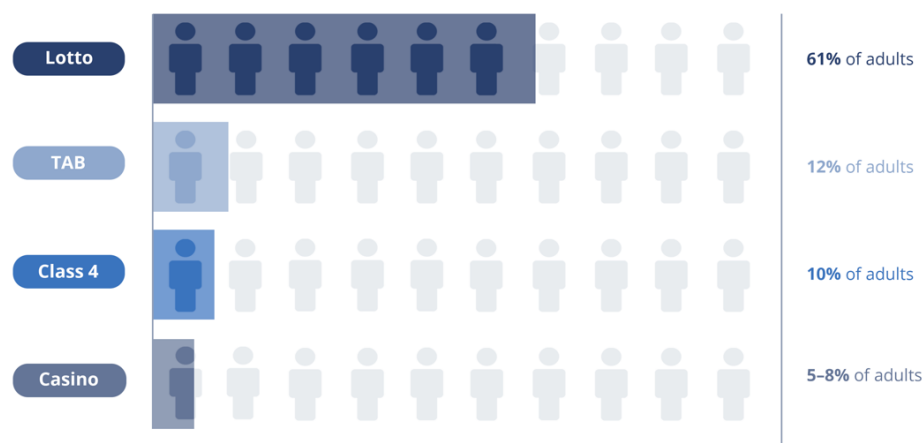
This section provides an overview of gambling in New Zealand, including:

- gambling participation;
- the regulatory environment;
- the gambling industry;
- gambling harm; and
- harm prevention and minimisation.

### 2.2 Gambling participation

Gambling is a popular form of entertainment in New Zealand, with around 7 in 10 New Zealand adults taking part in some form of gambling at least once a year.<sup>29</sup> As is presented in the figure below, of the four gambling types, Lotto is the most popular form by a significant margin.

**Figure 2: Gambling participation, 2016, %**



Source: Health Promotion Agency

Figure 2 illustrates that around:

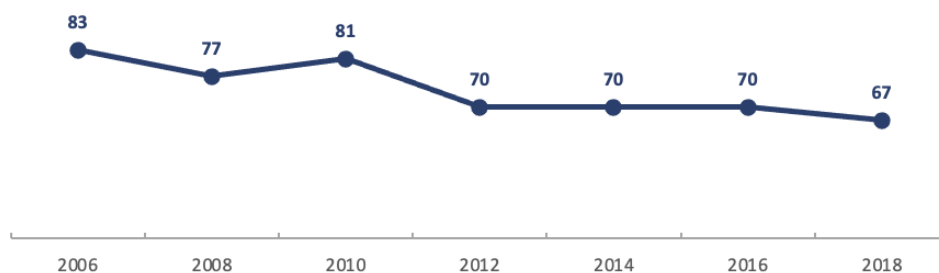
- 6 in 10 adults in New Zealand play Lotto once or more a year;
- 1 in 10 bet on racing or sports at the TAB;

<sup>29</sup> <https://www.hpa.org.nz/research-library/research-publications/gambling-participation-results-from-the-2018-health-and-lifestyles-survey>

- 1 in 10 play Class 4 gaming machines; and
- 1 in 15 gamble at the casino.<sup>30</sup>

Overall participation in gambling in New Zealand has been gradually falling over the last two decades. Figure 3 below graphs the gambling participation rate since 2006.

**Figure 3: Gambling participation in NZ, 2006 – 2018, % of adult population**



Source: Health Promotion Agency

As Figure 3 indicates, the 2006 participation rate of 83% fell to 70% in 2012, remaining relatively steady at around 70% since.

To understand how much people who gamble spend on this activity each year, it is important to understand how gambling spend is measured and the related terminology. Participants win back a portion of the money they spend, which means calculating their 'expenditure' is more complicated than, for example, calculating the amount spent on a night at the movies. In the gambling industries and throughout this report we use two important terms:

1. **Turnover** – the total amount wagered by people who gamble; and
2. **Expenditure** (or 'spend') – the net amount lost by people who gamble - that is, the total amount wagered less the amount returned in winnings (credits, dividends or prizes).

For example, if John or Jane go to the races with \$100, make three \$50 bets, and go home at the end of the day with \$80, then their:

- turnover is \$150; and
- expenditure is \$20.

The main measure referred to in the industry and in this report is expenditure, as this reflects the actual amount 'spent' by gamblers.<sup>31</sup> Throughout this report, the term expenditure always means total amount wagered minus the amount paid back to gamblers in credits, dividends and prizes.

The Department of Internal Affairs (DIA), the agency responsible for the regulation of gambling in New Zealand, releases data each year on the aggregate expenditure (the total amount spent in New

<sup>30</sup> Note: Casino gambling participation includes on-premises EGM participation (5.1%) and table-game participation (3.3%). Given a portion of casino revenue is generated by overseas visitors (in VIP lounges for example), Casino participation figures may be low relative to the total casino spend discussed in the following section.

<sup>31</sup> Whereas turnover includes a 'churn' factor whereby winnings are often re-gambled. Particularly in continuous gambling forms such as TAB, Class 4 and casinos, the churn factor contributes to higher turnover figures than non-continuous gambling forms such as Lotto's 'Powerball' draw.

Zealand) on each of the four main gambling types. In 2019, aggregate expenditure on the four gambling types was substantial, totalling approximately \$2,400 million.<sup>32,33</sup>

A breakdown of this expenditure by the four major gambling types is provided in Figure 4 below.

**Figure 4: Expenditure on each of the gambling types, 2019, \$ million**

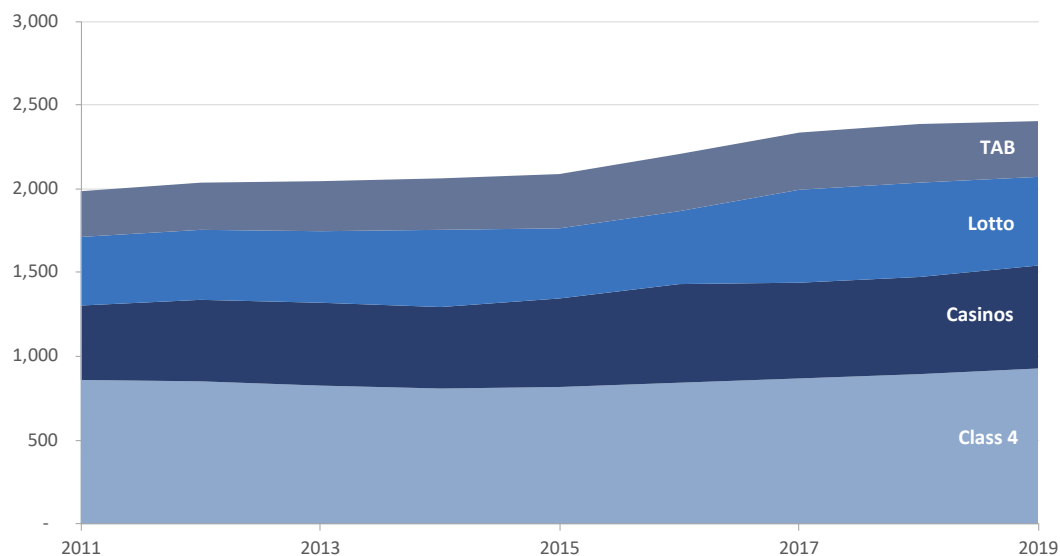


Source: Department of Internal Affairs

In terms of total expenditure per type of gambling activity, Class 4 is (by a significant margin) the largest of the four gambling types, followed by Casinos, Lotto and the TAB. While Lotto has the highest participation rate, it ranks third in terms of aggregate expenditure.

Figure 5 below examines how expenditure on the four gambling types has changed over the last decade, whilst providing a visual representation of the relative size of each gambling type.

**Figure 5: Nominal expenditure by gambling type, 2011 to 2019, \$ million**



Source: Department of Internal Affairs.

Figure 5 illustrates the growth in the four types of gambling since 2011, with nominal (i.e., non-inflation-adjusted) aggregate expenditure rising from \$2,000m in 2011 to \$2,400m last year. This growth – an average compound growth rate of 2.4% p.a. – has been above the average rate of inflation of 1.4% over the period. This means that in real (inflation-adjusted) terms, total expenditure on the four types of gambling has risen by around 1% each year. Given the population growth of around 2% p.a. on

<sup>32</sup> The dollar values in this section of the report are GST inclusive. As is discussed in Section 3, the NCBA is undertaken on the basis of GST exclusive figures.

<sup>33</sup> <https://www.dia.govt.nz/gambling-statistics-expenditure>

average over the period, average per capita expenditure on the four gambling types in aggregate has fallen by around 0.6% p.a. over the nine years. However, since gambling participation has fallen slightly over this period, average expenditure from these sources per gambler may not have seen a decline.

Among the four gambling types, expenditure in Casinos had the highest growth, rising at an average compound growth rate of 4% p.a. in nominal terms. Class 4 had the lowest growth, with nominal expenditure increasing at 1% p.a. In inflation-adjusted terms, Class 4 expenditure has declined slightly.

## 2.3 Regulatory environment

The primary piece of legislation that regulates gambling is the Gambling Act, 2003 (the Gambling Act or the Act). As discussed in Subsection 1.2, the Gambling Act integrated the Casino Control Act 1990 and the Gaming and Lotteries Act 1977. The purpose of the Gambling Act is to:

- a) control the growth of gambling;
- b) prevent and minimise the harm caused by gambling, including problem gambling;
- c) authorise some gambling and prohibit the rest;
- d) facilitate responsible gaming;
- e) ensure the integrity and fairness of gambling;
- f) limit opportunities for crime and dishonesty associated with gambling;
- g) ensure the money from gambling benefits the community; and
- h) facilitate community involvement in decisions about the provision of gambling.<sup>34</sup>

The Gambling Act also permits and regulates private gambling, which is defined as gambling which occurs at a private residence primarily for entertainment. Along with Lotto; casino; and some aspects of sport and race betting, the Gambling Act also authorises Class 1, 2 and 3 gambling, whereby:

- Classes 1 and 2 cover gambling outside private residences involving smaller amounts of money, such as office sweepstakes; and
- Class 3 gambling includes activities such as bingo and larger raffles and requires a licence from the DIA.

Class 1, 2 and 3 (and private) gambling have not been included in this report due to low materiality (relative to the four main gambling types) and data availability in these classes.

Alongside the Gambling Act, 2003, regulation of racing and sports betting is administered separately under the Racing Act, 2020. Administration of some TAB activities, however, including the operation of Class 4 gambling machines in the TAB and racing clubs, occurs under the Gambling Act, 2003.

The Gambling Act prohibits the supply of all remote interactive, or online, gambling<sup>35</sup> in New Zealand, with the exception of online gambling products and services offered by Lotto and the TAB.<sup>36</sup> New

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<sup>34</sup> <http://www.legislation.govt.nz/act/public/2003/0051/latest/DLM207803.html>

<sup>35</sup> The Act defines remote interactive gambling as “gambling by a person at a distance by interaction through a communication device” (New Zealand Government, 2013, p. 31) or the conduct of such a gambling activity by a person (New Zealand Government, 2015, p. 9).

<sup>36</sup> A recent amendment to the Gambling Act (Section 4a) also enables some Class 3 gambling operators (e.g. the Heart lottery) to undertake remote interactive gambling for a specified period due to the effects of COVID-19 on their ability to fundraise.



Zealanders are legally able to gamble online through overseas-hosted websites. Overseas websites provide many types of gambling, including pokies, poker, other casino games like blackjack or roulette, betting on sports events, horse and dog racing and overseas lotteries. Overseas providers are not regulated by New Zealand law<sup>37</sup> and are not subject to the New Zealand Problem Gambling Levy or taxation in New Zealand.

Several agencies have a role in the administration of gambling, including: the Department of Internal Affairs; the Ministry of Health; the Gambling Commission; and territorial authorities.

The DIA is the main government agency responsible for regulation of the gambling in New Zealand. The DIA acts as both the regulator and policy advisor to the Government on regulatory issues. The DIA is responsible for:

- administering the Gambling Act, 2003 and the Racing Industry Act 2020;
- issuing licences for gambling activities;
- ensuring compliance with the legislation; and
- working with the gambling sector to encourage best practices and limit criminal activity.

The Gambling Commission is an independent statutory decision-making body established under the Gambling Act. The Gambling Commission: hears complaints and appeals against the decisions made by the DIA in relation to Class 4 gambling; hears and determines casino licensing applications; and issues licences to casinos and authorises any changes to licence conditions.

In 2019 the DIA incurred regulatory costs for gambling of \$23m,<sup>38</sup> while the fiscal cost of the of the Gambling Commission totalled to \$1m. As Subsection 4.3 details, these costs are fully recovered through gambling fees on gambling operators.<sup>39</sup>

The Ministry of Health (MoH) is responsible for developing and implementing an integrated gambling strategy focused on public health. This includes:

- measures to promote public health by preventing and minimising the harm from gambling;
- services to treat and assist problem gamblers and their families and whānau; and
- independent scientific research associated with gambling.

To cover the costs related to the Ministry of Health's role, the Gambling Act, 2003 establishes the Problem Gambling Levy, levied directly on each gambling operator. Further discussion of the Problem Gambling Levy and how it is calculated follows in Subsection 4.3.

Finally, territorial authorities develop and enforce local policy relating to gambling venues. Data to estimate these costs is not readily accessible.

## 2.4 The gambling industry

Following on from the discussion of gambler participation and expenditure on each of the gambling types in Subsection 2.2, this section considers the supply side of the sector.

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<sup>37</sup> With the exception of charges to offshore betting operators administered under the part 5 of the Racing Industry Act, 2020.

<sup>38</sup> <https://www.budget.govt.nz/budget/pdfs/suppestimates/suppest20intaff.pdf> (p. 551).

<sup>39</sup> Alongside a relatively small portion accounted for by Class 3 operators, not covered in this report on the basis of materiality.



Three key terms that are used are:

1. **Turnover** – as defined earlier, this is the total amount wagered by people who gamble. For gambling operators, it is the total amount received;
2. **Revenue** – turnover less prizes paid to participants – the gross (before operational and capital expenses) return to the gambling operator. This is the same as the amount lost by gamblers (expenditure); and
3. **Net proceeds** – Revenue received by the gambling operator minus costs, levies and taxes.<sup>40</sup>

These three terms can be understood through the equations below.

$$\text{turnover} - \text{prizes} = \text{revenue}.$$

$$\text{revenue} - \text{costs} - \text{levies} - \text{taxes} = \text{net proceeds}.$$

For each of the four gambling types, this subsection provides an overview of:

- the gambling type, its products and distribution outlets;
- a breakdown of where each dollar of turnover goes; and
- how net proceeds are applied or distributed.

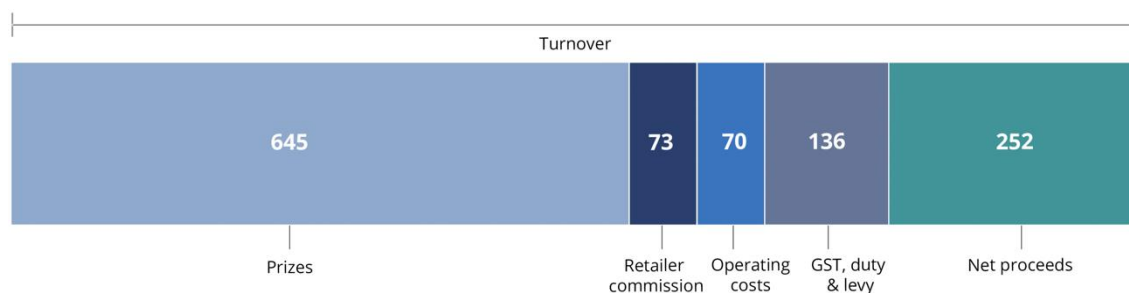
## Lotto

The New Zealand Lotteries Commission (known as Lotto New Zealand and referred to in this report as Lotto) was established in 1987 and operates as a Crown entity under the Gambling Act. Lotto transfers 100% of its net proceeds to a separate agency, New Zealand Lotteries Grants Board, responsible for distribution.

Lotto New Zealand's products include Lotto, Powerball, Strike, Bullseye, Keno and scratch-to-win games called Instant Kiwi. Lotto products are sold in-store in approximately 1,500 retail outlets and online via the Lotto website and MyLotto app.

Players win back an average of 55 cents of every dollar gambled on Lotto products. In other words, 55% of Lotto's turnover is paid back to players in prizes. What is not paid back in prizes (Lotto's revenue) is first used to cover retailer commission, operating costs, taxes and levies, with the remainder (net proceeds) distributed to the New Zealand Lotteries Grants Board. Figure 6 presents a visual breakdown of this below based on 2019 data.

**Figure 6: A breakdown of Lotto's turnover, 2019, \$ million**



<sup>40</sup> 'Levies' refer to the Problem Gambling Levy and 'taxes' include GST and gambling duty (Lotto duty, betting duty, gaming machine duty and casino duty).

As Figure 6 above indicates, in 2019, Lotto paid:

- \$645m to players in prizes;
- \$143m in retailer commission and operating costs;
- \$136m in taxes, duty and levy (GST, Lotteries duty and Problem Gambling Levy); resulting in
- \$252m in net proceeds.

100% of Lotto’s net proceeds are distributed in grants by the New Zealand Lotteries Grants Board. Each year, around half of the net proceeds are distributed to Creative New Zealand; New Zealand Film Commission; Nga-Taonga Sound & Vision; and Sport New Zealand. The remaining half (totalling \$141m in 2019) is distributed centrally by the New Zealand Lotteries Grants Board to a range of community organisations. Within the New Zealand Lotteries Grants board, 22 committees make grant-making decisions. Further discussion of the recipients and distribution system is presented in Subsection 4.3.

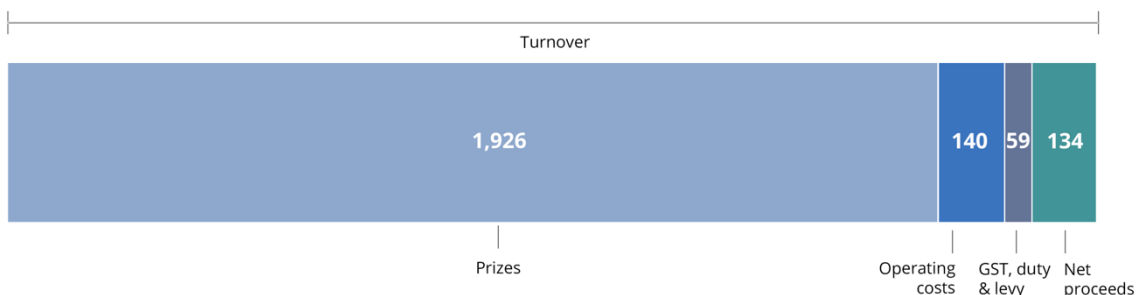
## TAB

TAB New Zealand (TAB)<sup>41</sup> is a statutory monopoly responsible for conducting all racing and sports betting in New Zealand. Regulation of racing and sports betting is predominantly administered under the Racing Act, 2020. Some activities, including the operation of Class 4 gaming machines at TAB venues, occur under the Gambling Act. TAB operation of Class 4 is included in the Class 4 subsection to follow. Likewise, throughout this report, all figures relating to TAB refer only to racing and sports betting revenue, with all TAB Class 4 revenue captured as Class 4.

The TAB offers betting on thoroughbred, harness and greyhound racing, alongside 24 different sports, both domestic and international (including the recent addition of Esports<sup>42</sup>). TAB betting can be placed in-person at one of 580 outlets, or, like Lotto, online via the TAB website or the TAB app.

Players win back an average of 85 cents of every dollar gambled at the TAB. What is not paid back in prizes (TAB’s revenue) is first used to cover betting related costs, taxes and levies, with the remainder (net proceeds) returned to the racing and sports industries. Figure 7 presents a visual breakdown of this below with 2019 data.

**Figure 7: A breakdown of TAB’s turnover, 2019, \$ million**



As Figure 7 above indicates, in 2019, TAB paid:

- \$1,926m to betterers in prizes;
- \$140m in operating costs;

<sup>41</sup> From August 2020, TAB New Zealand replaced the Racing Industry Transition Agency, which itself had replaced the New Zealand Racing Board.

<sup>42</sup> As of March 2020.

- \$59m in GST, duty and levy; resulting in
- \$134m in net proceeds

Net proceeds from racing betting (around 90% of the total) are applied to fund the racing industry. Net proceeds from sports betting are distributed to national sporting bodies depending on the betting turnover and betting margin earned by each sport.<sup>43</sup>

## Class 4

Class 4 gambling is gambling using non-casino-located electronic gaming machines, also known as pokies. Class 4 gambling is highly regulated by the Gambling Act<sup>44</sup> and can only be operated in New Zealand by not-for-profit corporate societies and the TAB. As at June 30 2020, there were 14,847 Class 4 gaming machines in operation in New Zealand. There are two types of corporate societies that operate Class 4:

1. traditional (non-club) gaming societies which operate gaming machines in separately-owned pubs and bars; and
2. club societies that operate gaming machines in their clubrooms.

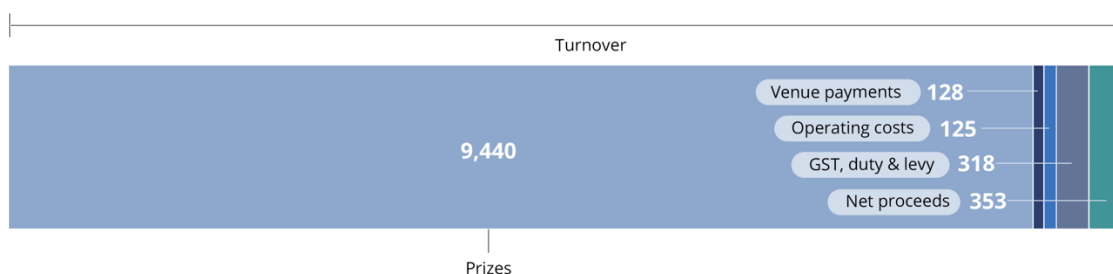
**Traditional gaming societies** own gaming machines and make venue payments to pubs and bars in exchange for hosting the machines. There are currently 33 traditional gaming societies in New Zealand, which operate approximately 80% of Class 4 gaming machines in around 800 venues.<sup>45</sup>

**Club societies** own and host gaming machines. There are currently 189 club societies operating Class 4 gaming machines, including: 104 chartered clubs (such as cosmopolitan and working man's clubs); 57 RSAs; and 28 sports clubs. Club societies own and operate around 17% of Class 4 gaming machines in New Zealand.

Since 2011, the **TAB** has also been permitted, under the Gambling Act, to operate Class 4 gaming machines at TAB venues. The TAB operates around 3% of Class 4 gaming machines in 44 TAB venues.

Players win back an average of 91 cents of every dollar gambled on Class 4 machines.<sup>46</sup> What is not paid back in prizes is first used to cover costs, taxes and levies, with the remainder (net proceeds) either distributed in grants to community organisations or applied by the society to an authorised purpose (discussed below). Figure 8 presents a visual breakdown of the turnover in the Class 4 sector as a whole (including all traditional gaming societies, clubs and the TAB).

**Figure 8: A breakdown of Class 4 turnover, 2019, \$ million**



<sup>43</sup> For each category of gambling, this study assumes that 'transfers to industry' of 'net proceeds' are for purposes independent of the basis for gambling; they are for general purposes. In the case of TAB horse-race-betting this assumption may be moot; for TAB horse-race betting and the racing industry each depend for their commercial viability on the other. This report treats TAB payment to racing as "net proceeds".

<sup>44</sup> Covered from Sections 30 to Section 118 in the Gambling Act.

<sup>45</sup> [https://www.dia.govt.nz/diawebsite.nsf/Files/Gambling-Statistics/\\$file/Quarterly-Summary-of-GM-June-2020.pdf](https://www.dia.govt.nz/diawebsite.nsf/Files/Gambling-Statistics/$file/Quarterly-Summary-of-GM-June-2020.pdf)

<sup>46</sup> The maximum bet size is \$2.50, while the maximum prize on the machine per bet (or spin) is \$500 and the maximum prize on an external or 'linked' jackpot is \$1,000. These standards have remained unchanged since 1997.

As Figure 8 above indicates, in 2019, Class 4 paid:

- \$9,440m to players in prizes;
- \$253m in venue payments and operating costs;
- \$318m in GST, duty and levy; leaving
- \$353m in net proceeds from the Class 4 sector.

In the case of traditional gaming societies, as with Lotto, 100% of net proceeds are distributed in grants to community organisations. Of the total 2019 net proceeds of \$353m, \$290m was distributed in grants by traditional gaming societies.<sup>47</sup> Unlike Lotto, grant distribution is decentralised, i.e., each of these societies make their own decisions on how to run their operations and how they distribute their grants, within the constraints of the Gambling Act and its related regulations.

In the case of club societies, net proceeds are mainly applied by the club for the benefit of club members.<sup>48</sup> Clubs may apply net proceeds to 'authorised purposes', such as maintenance and development of club grounds; staff wages; or funding special events. Of the 2019 net proceeds, \$39m was applied by club societies to authorised purposes.

In the case of Class 4 gaming machines at TAB venues, 80% is applied to authorised purposes in the racing industry (in a similar way to clubs applying net proceeds to benefit club members) and the remaining 20% is distributed to community sporting organisations. In 2019, \$4m was distributed to sporting organisations and the remainder applied to the racing industry.

## Casinos

New Zealand has six licensed casinos, with Section 10 of the Gambling Act stating that no new casino venue licences may be granted. Casinos offer a variety of gambling games (collectively referred to as Casino table games), as well as on-premises electronic gaming machines. Unlike the other three gambling types, casinos are for-profit, private entities. New Zealand-based casinos are not permitted under the Act to supply online gambling.

Of the six casinos in New Zealand:

- four are owned by the NZX and ASX-listed SkyCity Entertainment Group Ltd (SkyCity):
  - SkyCity Auckland;
  - SkyCity Hamilton; and
  - two small Queenstown based casinos: SkyCity Queenstown and SkyCity Wharf;
- one, Christchurch Casino, is fully owned by Skyline Enterprises Ltd, a company listed on the Unlisted share trading platform; and
- the other, Dunedin Casino, is partially owned by Christchurch Casino.

While the DIA publishes data on total casino revenue, both turnover and the amount paid to players in prizes is not published. Likewise, as private entities, data on operating costs; levy and tax payments is not publicly available for all Casinos. Later, in the quantification of costs and benefits section (Section

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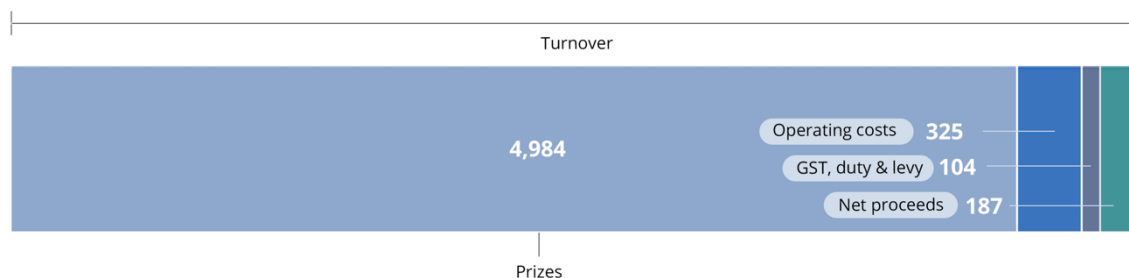
<sup>47</sup> With total Class 4 distributions (including the TAB) totalling \$294m. Given the difference in nature of the TAB to the other 33 traditional gaming societies, each is discussed separately.

<sup>48</sup> With some clubs also making distributions to community organisations (such as amateur and youth sporting organisations, for example).

4) of this report, we use industry data to make estimations of these amounts. These estimates are presented below.

We estimate that players win back an average of 89 cents of every dollar gambled at a casino. What is not paid back in prizes is first used to cover costs, taxes and levies, with the remainder (net proceeds) either reinvested into the business or paid to shareholders in dividends. Figure 9 presents a visual breakdown of the turnover in the Casino sector.

**Figure 9: A breakdown of Casino turnover (TDB estimates), 2019, \$ million**



Casinos are not required to distribute net proceeds to an authorised purpose. However, the Gambling Act requires casino venue licenses not be renewed unless, among other things, the Gambling Commission is satisfied that “renewing the licence will result in a net benefit to the local and regional communities... and to New Zealand generally.” As discussed in Subsection 1.2, the liberalisation of casinos in New Zealand was based on the tourism, employment and economic development effects of gambling rather than community fundraising.

## 2.5 Industry summary

Table 3 below presents a breakdown of the turnover for each gambling type discussed in Subsection 2.4 above.

**Table 3: Breakdown of turnover for each gambling type, 2019, \$ million**

	Lotto	TAB	Class 4	Casinos
Turnover	1,175	2,258	10,364	5,600
Prizes	645	1,926	9,440	4,984
Return to players (prizes / turnover)	0.55	0.85	0.91	0.89
Revenue	530	332	924	616
<b>Operating costs</b>				
Retailer or venue payments	73	NA	128	NA
Other operating costs	70	140	125	320
Total operating costs	143	140	254	320
<b>GST, duty &amp; levy</b>				
GST	69	44	121	81
Gambling Duty	65	13	185	20
Problem Gambling Levy	2	2	12	3
Total taxes and levy	136	58	318	104
Net proceeds (revenue - costs - (GST duty & levy))	252	134	353	192
Distribution of net proceeds	Distributed to community	Applied to race industry or distributed to sports	Distributed to community or applied for club benefit	Reinvested or distributed to shareholders

*Note: Casino information is based on TDB estimates, using the methodology discussed in Section 5.*

Key points from Table 3 include:

- Class 4 is the largest of the four types of gambling, with the highest turnover, revenue and net proceeds;
- gambling industries pay a significant amount in gambling duty; and
- the net proceeds for Lotto, TAB and Class 4 are all either distributed to the community or applied for the benefit of the underlying industry (e.g. sports) or club.

## 2.6 Gambling harm

For the significant majority of participants, gambling is just another form of entertainment. For a small portion of participants, however, gambling can lead to harm. As established above, one purpose of the Gambling Act is to prevent and minimise the harm caused by gambling, including problem gambling. The Gambling Act defines gambling harm as:

*harm or distress of any kind arising from, or caused or exacerbated by, a person's gambling; and includes personal, social or economic harm suffered:*

- *by the person; or*
- *by the person's spouse, civil union partner, de facto partner, family, whanau, or wider community; or*
- *in the workplace; or*
- *by society at large.*<sup>49</sup>

This subsection examines the issue of gambling-related harm, looking at how many gamblers experience harm and the primary gambling mode of each gambler type.

### Gambler types

Before the turn of the century, what was deemed 'problem gambling' was generally considered as a discrete disorder, which an individual has or does not have. Over the last two decades, treatment of problem gambling (alongside a number of other health issues such as smoking and drinking) has moved from this medical approach to a public-health approach, which recognises harm on a continuum.<sup>50</sup>

Where a gambler sits on this continuum can be understood using the Problem Gambling Severity Index (PGSI), developed by Ferris and Wynne<sup>51</sup>. The PGSI is the current international standard for measuring problem gambling severity and is the measurement system used by the Ministry of Health in New Zealand.

The PGSI asks nine behavioural questions, the results of which generate a score from 0 to 27, assessing whether the respondent falls under the category of non-gambler; non-problem gambler; low-risk gambler; moderate-risk gambler; or problem gambler. A description of these five categories, as

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<sup>49</sup> Gambling Act, 2003, Section 4.

<sup>50</sup> Korn D, Gibbins & Azmier (2003), Adams, Raeburn, de Silva. (2009).

<sup>51</sup> Ferris & Wynne (2001).

defined by Ferris and Wynne, are presented in Figure 10 below, while further detail on the construction of the PGSI is presented in Appendix 1.

**Figure 10: Problem Gambling Severity Index gambler types**

**Non-gambling:** respondents in this group have not gambled at all in the past 12 months, and will have been skipped through the majority of the questionnaire, with the exception of the correlates section. Non-gamblers may have some of the correlates of problem gambling. This information is important in the context of long-term tracking, in that the correlates may predict those who were once or may become gamblers or problem gamblers.

**Non-problem gambling:** Score of 0 on the CPGI. Respondents in this group will have responded "never" to most of the indicators of behavioral problems, although there may well be a frequent gambler with heavy involvement in terms of time and money. The "professional" gambler would fit into this category. This group probably will not have experienced any adverse consequences of gambling, nor will they agree with the distorted cognition items. Again, the information on correlates here is important for comparative purposes, and would be particularly useful in long-term tracking.

**Low risk gambling:** Score between 1 and 2.5 on the CPGI. Respondents in this group will have responded "never" to most of the indicators of behavioral problems, but will have one or more sometimes or more often responses. Gamblers may be at risk if they are heavily involved in gambling and if they respond positively to at least two of the correlates of problem gambling. This group likely will not have experienced any adverse consequences from gambling.

**Moderate risk gambling:** Score between 3 and 7.5 on the CPGI. Respondents in this group will have responded "never" to most of the indicators of behavioral problems, but will have one or more "most of the time" or "always" responses. Gamblers may be at risk if they are heavily involved in gambling and if they respond positively to three or four of the correlates of problem gambling. This group may or may not have experienced adverse consequences from gambling.

**Problem gambling:** Score between 8 and 27 on the CPGI. Respondents in this group are those who have experienced adverse consequences from their gambling, and may have lost control of their behavior. Involvement in gambling can be at any level, but is likely to be heavy. This group is more likely to endorse the cognitive distortion items. The correlates may be useful here in profiling capacity, as we would anticipate that this group would respond positively to more of the correlates than members of other groups, on average.

Source: Ferris and Wynne (2001, p. 31).

Note: CPGI stands for Canadian Problem Gambling Severity Index, synonymous with the PGSI.

As is evident above, scores among gambler types vary greatly, with low-risk gamblers scoring from 1-2 on the test, while problem gamblers' scores range from 8 to 27 (though scores in the 20's represent extremely high behavioural problems and tend to be uncommon).

Estimating the prevalence of each gambling type in New Zealand (as per the PGSI) is a key aspect of both the Health and Lifestyles Survey and the National Gambling Study. The results are presented in Table 4 below.

**Table 4: Estimated number of gamblers by type in New Zealand**

PGSI	Gambler type	Health and Lifestyle Survey, 2016		National Gambling Study, 2015	
		% of population	No. of people	% of population	No. of people
0	Non-gambler	30	1,121,000	25	877,000
0	Non-problem gambler	65	2,466,000	68	2,387,000
1-2	Low-risk gambler	3.3	125,000	4.6	161,000
3-7	Moderate-risk gambler	1.5	55,000	1.8	63,000
8-27	Problem gambler	0.1	6,000	0.2	7,000
	Total population	100	3,773,000	100	3,510,000

Source: Health and Lifestyles Survey 2016 and National Gambling Study 2015.



*Note: Adult population consists of age 15+ for the Health and Lifestyle Survey and 18+ for the National Gambling Study.*

Both surveys indicate around just under one third of the adult population are non-gamblers and around two thirds are non-problem gamblers. As for the remaining groups:

- low-risk gamblers account for 3.3% of the adult population according to the HLS and 4.6% according to the NGS;
- moderate-risk gamblers account for 1.5% of the adult population according to HLS and 1.8% according to the NGS; and
- problem gamblers account for around 0.1% of the adult population according to the HLS and 0.2% according to the NGS.

The NGS results indicate a somewhat higher gambling prevalence and higher rates of low-risk, moderate-risk and problem gamblers. This may be in part because the NGS is based on adults 18 and over, as opposed to the HLS, where adults are defined as 15 and over. While both studies provide information about the prevalence of at-risk gamblers, given the NGS was designed specifically to analyse gambling, was based on a larger sample size and is a longitudinal study, we consider this study more fit-for-purpose in estimating problem gambling prevalence.

Applying the NGS's latest prevalence rates to the 2019 adult population of 3,842,100,<sup>52</sup> we estimate there are approximately:

- 960,000 non-gamblers;
- 2,612,000 non-problem gamblers;
- 161,000 low-risk gamblers;
- 69,000 moderate-risk gamblers; and
- 8,000 problem gamblers in New Zealand.<sup>53</sup>

As per the PGSI categories described in Figure 10 above, the 2,612,000 non-problem gamblers do not experience adverse consequences from gambling, while the 161,000 low-risk gamblers will likely not have experienced any adverse consequences from gambling. As discussed later in Section 5, where adverse consequences are reported for this low-risk group, they tend to be very mild (sometimes referred to as 'slight harms', such as a reduction of available funds or time for other activities or minor psychological reactions like regret<sup>54</sup>).

Importantly, there are also around 69,000 moderate-risk gamblers in New Zealand, who may or may not experience some adverse consequences from gambling (though to a lesser extent than problem gamblers), and around 8,000 problem gamblers who have experienced adverse consequences from their gambling and may have lost control of their behaviour. Appendix 2 examines how these rates compare internationally.

A more detailed discussion of the nature of the different forms of gambling-related harm is presented in Section 5 of this report.

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<sup>52</sup> Source: Statistics New Zealand. Adults are defined as those 18 and over.

<sup>53</sup> These estimates are made with the assumption that prevalence of each gambler type in 2019 is consistent with the NGS's 2015 findings.

<sup>54</sup> Delfabbro et al. (2020a).



## Gambling modes by gambler type

Gambling can lead to harm in each of the four gambling types and in private gambling (such as cards and housie). Table 5 below is sourced from the Ministry of Health and presents the primary gambling mode of clients receiving problem-gambling treatment services. The latest year available is 2017/18, during which problem-gambling treatment services had 5,457 full and follow-up clients.<sup>55</sup>

**Table 5: Primary gambling mode of clients of problem gambling treatment services, 2017/18**

	Individual	Affected others	Total clients	Proportion of total
Lotto	396	261	657	12%
TAB	379	136	515	9%
Class 4	2,040	595	2,635	48%
Casinos	922	213	1,135	21%
Other	351	165	516	9%
Total	4,087	1,370	5,457	100%

Source: Ministry of Health.

Of the 5,457 full and follow-up clients, 4,087 were individual gamblers and 1,370 were affected others. The reported primary gambling mode relating to:

- 12% of clients was Lotto;
- 9% of clients was TAB;
- 48% of clients was Class 4;
- 21% of clients was Casinos; and
- 9% of clients was other (which includes gambling forms such as housie and poker).

As Table 5 indicates, the gambling form most associated with problem gambling was Class 4, followed by Casinos, Lotto and TAB.

## Second-hand gambling harm

Gambling harm can be felt not only by the individual, but also by others around them. As illustrated in Table 5 in the previous subsection, 25% of the full and follow-up clients of problem-gambling intervention services are family/affected others.

The NGS does not report on the prevalence of second-hand gambling harm. The HLS however reports that 6% of New Zealand adults reported experiencing some adverse effects from someone else's gambling.<sup>56</sup> A 2008 study on the social impacts of gambling in New Zealand found that close family members (i.e., partners, children, parents, siblings) of heavy gamblers were most negatively impacted by their family members' gambling, while gambling addiction in wider family members, friends and work-related associates did not have significant negative impacts on people.<sup>57</sup>

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<sup>55</sup> Problem-gambling treatment services also have 'brief intervention clients', of which there were 5,098 in 2017/18.

<sup>56</sup> With adverse effects measured by the HLS including having an argument about time or money spent on gambling, going without, or bills not being paid because too much money was spent on gambling by another person.

<sup>57</sup> Lin et al. (2008, p. 11).

## 2.7 Harm minimisation and prevention

Harm minimisation and prevention is a key role of each of the gambling operators. Each of the four main gambling activities provide harm minimisation and prevention rules and policies. Part 4 of the Gambling Act, 'Harm minimisation, prevention, enforcement and other matters', establishes the legislated requirements for each of the gambling types. Key sector-wide requirements include:

- age restrictions: the legal age to purchase Lotto products, bet at the TAB or play Class 4 is 18 years and older. The legal age to enter a Casino is 20 years and older;
- venue admission policies: allowing all gambling operators to remove/exclude problematic players;
- the Problem Gambling Levy: the Levy is collected from all gambling operators and is used to fund the MoH's integrated problem-gambling strategy; and
- licensing: the regulator has the power to grant and remove operator licenses based on adherence to harm prevention and minimisation.

Gambling operators work with the DIA and MoH to comply with the requirements of the Act. Some of the harm minimisation and prevention policies undertaken in each sector are listed below.

### Lotto

- Research into harm minimisation in product development and benchmarking against international responsible-gambling best practice.
- Training retailers on responsible gambling and undertaking mystery shops to test age checking.
- Game-design risk assessments, with all new games and game changes reviewed by the IRD and MoH.
- Mandatory spending limits and the ability for players to set their own spending limits on online platforms and self-block from games.
- Advertising that adheres to the Advertising Standards Authority's (ASA) Code for Advertising and Gambling, 2001.<sup>58</sup>
- Information about responsible play, including the odds of all games available in-store and online.<sup>59</sup>

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<sup>58</sup> The code ensures that gambling related advertisements do not:

- Promote betting as a means of relieving or improving a person's financial, professional, or personal difficulties;
- State or imply a promise of winning or portraying unrealistic outcomes from winning;
- Misrepresent the level of financial risk associated with betting;
- Encourage consumers to bet excessively or beyond their means;
- Create a false sense of urgency such that consumers may be misled into thinking they must act quickly in order to participate or win;
- State or imply that there is a link between gambling and sexual or relationship success, or enhanced attractiveness;
- Portray, condone or encourage peer pressure to gamble;
- Exaggerate the connection between the gambling activity and the use (individual / family / whanau / community) to which the profits may be put;

<sup>59</sup> Lotto (2019, p. 16).

## TAB

- Spending limits on online accounts, with a mandatory 'cool down' period before these limits can be changed.
- Ability for players to elect to 'take a break' from their account, over which time they cannot gamble and do not receive promotional emails.
- Ability for players to self-exclude themselves from both their online account and TAB venues.
- Advertising compliant with the Code for Advertising and Gambling 2001.
- Research and development of new tools and technologies aimed at harm minimisation.<sup>60</sup>

## Class 4

- Limits on stakes, maximum bets and prize money.
- Displaying odds of winning and messages to players every 30 minutes showing length of play, wins and losses.
- Not accepting \$50 and \$100 notes and no ATMs in gaming areas.
- Prohibition on advertising of Class 4.
- Having a gambling harm prevention and minimisation policy in place, including monitoring behaviour, keeping records of at-risk players and excluding players where necessary.
- The ability for players to self-exclude from one or multiple venues.
- Facial recognition software in some venues.

## Casinos

- Host responsibility programmes focused on customer care and monitoring with annual reporting to the regulator (DIA).
- Software and algorithms to monitor gaming machine player behaviour in real-time.
- Staff training in harm prevention and minimisation, with annual refresher courses.
- Ability to exclude patrons with the use of facial recognition and alert technology to detect excluded patrons.
- Host responsibility governance group and board oversight of harm minimisation framework.
- The ability for players to self-exclude from one or multiple venues.
- No ATMs in gaming areas and no notes higher than \$20 for gaming machines.
- Betting limits and advertising restrictions, including no advertising of jackpots.

Harm minimisation and prevention is an important role of both the regulator and gambling activity providers.

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<sup>60</sup> TAB (2019, p. 7).

## 2.8 Offshore online gambling

Under the Gambling Act, 2003, all provision of remote, interactive gambling<sup>61</sup> in New Zealand is prohibited, with the exception of online gambling products and services offered by Lotto and the TAB.

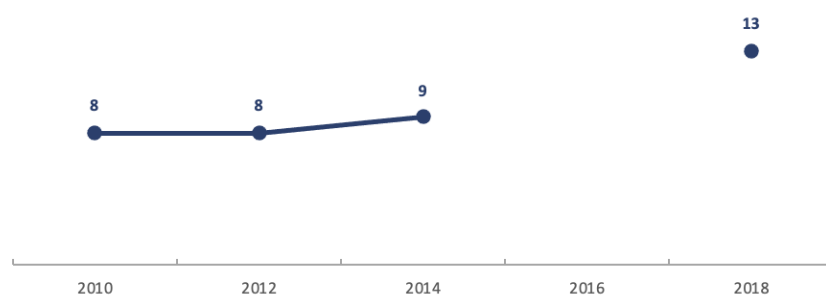
While domestic-based online operators are prohibited, New Zealanders are legally able to gamble online through overseas-hosted sites. Overseas websites provide many types of gambling, including pokies, poker, other casino games like blackjack or roulette, betting on sports events, horse and dog racing and overseas lotteries.

Since 2019, SkyCity has offered online gambling services available to people in New Zealand through SkyCity Online Casino (<https://www.skycitycasino.com/>). SkyCity Online Casino is operated by MT SecureTrade Limited, a company incorporated under the laws of Malta. Unlike domestic gambling operators, overseas providers are not regulated by New Zealand law and are not subject to the New Zealand Problem Gambling Levy or other forms of taxation in New Zealand.

It is difficult to obtain accurate figures on the extent of online gambling, but it is likely that expenditure on online gambling is growing. The 2018 HLS estimated that around 13% of New Zealand adults took part in online gambling in 2018, the majority of which took place on the Lotteries NZ owned and operated MyLotto app, followed by the TAB's app and gambling on offshore sites.<sup>62</sup> The survey also showed that:

- among the younger demographic (18-34), more participants gambled online than not online in 2018;<sup>63</sup> and
- as per Figure 11 below, online gambling participation rates are increasing (from 8% in 2010 to around 13% in 2018).

**Figure 11: Online gambling rates, % of adult population, 2010 – 2018**



Source: 2018 HLS. (Note – data is unavailable for 2016).

The DIA has estimated that in the 18 months from January 2018 to July 2019, expenditure by New Zealanders on offshore gambling was approximately \$381 million.<sup>64</sup> Given the difficulties in accessing information relating to offshore online gambling, we have not attempted to include it in our calculations in the following sections. To the extent that online offshore gambling occurs, this may result in an understatement of total gambling activity in New Zealand. Online gambling through Lotto and the TAB are, however, included in calculations for these gambling types.

<sup>61</sup> The Act defines remote interactive gambling as “gambling by a person at a distance by interaction through a communication device” (New Zealand Government, 2013, p. 31) or the conduct of such a gambling activity by a person (New Zealand Government, 2015, p. 9).

<sup>62</sup> To the extent that online gambling is provided by New Zealand-based operators like Lotteries NZ and the TAB, expenditure on online gambling will be captured in the gambling expenditure figures in Section 4.2 above.

<sup>63</sup> With the opposite trend for participants aged over 55.

<sup>64</sup> [https://www.dia.govt.nz/diawebsite.nsf/Files/Online-Gambling-Consultation/\\$file/Online-Gambling-in-New-Zealand-Discussion-Document.pdf](https://www.dia.govt.nz/diawebsite.nsf/Files/Online-Gambling-Consultation/$file/Online-Gambling-in-New-Zealand-Discussion-Document.pdf)

## 3 Framework

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### 3.1 Introduction

Sections 1 and 2 provide background information on the context of this report and gambling in New Zealand. In this section, we first present the framework we use for assessing the national wellbeing effects. That framework is the conventional framework for assessing national wellbeing; national cost-benefit analysis (NCBA). The subsequent sections 4 to 6 present our analysis of the national wellbeing effects of gambling on New Zealand.

### 3.2 National cost-benefit analysis

NCBA is a well-established and internationally-recognised means for assisting social decision making.<sup>65</sup> It is a standard way of identifying and quantifying the benefits of an activity or a policy relative to the costs of the activity or policy for a country as a whole. NCBA has been used by the World Bank since at least the 1950s as a means of ranking investment projects. Further, nearly all Western industrialised countries have protocols covering the application of NCBA to a broad range of public investment opportunities or specific program areas.

In New Zealand, the Treasury encourages important public-policy decisions to be informed by fit-for-purpose NCBA.<sup>66</sup> The Treasury notes “(N)CBA contributes to the analysis of policy options, informing considerations of the difference for New Zealanders lives and the experienced wellbeing over time across wellbeing domains.”<sup>67</sup>

Treasury uses a national cost-benefit analysis tool called CBAX.<sup>68</sup> Treasury encourages national cost-benefit analysis users to:

- focus on monetising key effects that have a good evidence base, rather than trying to monetise all effects;
- consider all effects, whether monetised or not; and
- leave effects as unmonetised, or provide sensitivity analysis and ranges, when the evidence base is limited or the connection is tenuous and uncertain.

#### Key features of national cost-benefit analysis

NCBA considers, as far as is feasible, the effects of the policy or projects on society’s overall wellbeing - not just the monetary or financial effects on people. A well-constructed NCBA will include relevant non-market-values such as environmental, cultural, institutional and physical and mental-health values that affect wellbeing, even though these values are often difficult or impossible to quantify in monetary terms.

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<sup>65</sup> For an introduction to NCBA, see for example Boardman (2018), Layard, & Glaister (1994), Reference Case Guidelines for Benefit-Cost Analysis in Global Health and Development’ by L. Robinson, J. Hammit, M. Cecchini, K. Chalkidou, K. Claxton, P. Hoang-Vu Eozenou and David de Ferranti, et al. 2019. Report for Bill and Melinda Gates Foundation. <https://cdn1.sph.harvard.edu/wp-content/uploads/sites/2447/2019/05/BCA-Guidelines-May-2019.pdf>.

<sup>66</sup> New Zealand Treasury (2015).

<sup>67</sup> New Zealand Treasury (2020, p. 4).

<sup>68</sup> See: <https://www.treasury.govt.nz/information-and-services/state-sector-leadership/investment-management/plan-investment-choices/cost-benefit-analysis-including-public-sector-discount-rates/treasurys-cbax-tool>

NCBA does not treat money as an end *per se*. Though the quantifiable results of an NCBA are usually expressed in dollar terms, money is used a proxy for measuring underlying contributions to wellbeing and provides a basis for aggregating and comparing different things as valued by society. The New Zealand Treasury's CBAX, for example, refers to the four stocks of "capital" (financial and physical, natural, social, and human) that underpin the Treasury's Living Standards Framework.<sup>69</sup>

Although a purpose of cost-benefit analysis is to generate objective measures of the net contribution of an intervention to national wellbeing, the discipline associated with the cost-benefit analysis process is as important as the measurement. As noted by the Treasury:

*"(N)CBA is often rejected on the grounds that some benefits are hard to measure. While that is often true, a (N)CBA is about organising in a logical and methodical way whatever information is available."*<sup>70</sup>

In NCBA all costs and benefits of a policy or activity are measured relative to a counterfactual (i.e., what would happen if the project or policy being assessed did not occur). If, for example, the costs and benefits of building a bridge over a gully are being assessed, the counterfactual would be a situation where the bridge is not built. In both the factual - the case of the bridge being built - and the counterfactual - the status quo where there is no bridge - trucks can get from one side of the gully to the other, though with the bridge this takes ten minutes, as opposed to two hours in the counterfactual. The transport-time-saved benefit of the bridge to truckers is therefore one hour and 50 minutes.

NCBA calculates the costs and benefits to the wellbeing of New Zealanders as whole. No distinction is made in NCBA regarding which individual New Zealand residents experience changes in welfare – the criteria is the total welfare of all New Zealand residents independent of its distribution. The underlying principle is that concerns about who receives the benefits and who bears the costs of a policy or activity are better addressed separately, through policies that directly affect distribution such as through income support and other aspects of the welfare system.

Under NCBA, the costs are the opportunity costs (e.g., the value of what is given up to spend on gambling) of the extra resources an activity employs and the benefits are the outputs of the activity at values that indicate consumer utility. These values are typically estimated from the willingness of consumers to pay for the activity's extra goods and services. Often the output value and the opportunity costs are well proxied by market prices. In other cases, estimation is required.

As noted above, a proper NCBA only incorporates costs and benefits that would not occur in the counterfactual. A good example of this is the treatment of GST. If a good or a service "A" that is being evaluated did not exist, consumer spending would be transferred to goods and services "B", "C" and "D". No GST would be collected from good or service "A", however the forgone government revenue would be largely or fully replaced with GST collected from goods and services "B", "C" and "D". Ultimately, this means that GST revenue in aggregate is unlikely to change materially. Further, Treasury suggest the use of GST-exclusive prices, as this provides consistency with those used in parliament.<sup>71</sup> As such, all prices in NCBA are generally best evaluated on a GST-exclusive basis and that is the approach we adopt for this NCBA of gambling.

## Consumer and producer surpluses

Important components of this NCBA analysis are the economic concepts of consumer and producer surpluses. In mainstream economics, total wellbeing or total social surplus refers to the sum of two related quantities: consumer surplus and producer surplus, where:

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<sup>69</sup> New Zealand Treasury (2018).

<sup>70</sup> New Zealand Treasury (2015, p. 6).

<sup>71</sup> New Zealand Treasury (2015, p. 27).

- consumer surplus is the benefit obtained by consumers because they are able to purchase a product for a price that is less than the highest price that they would be willing to pay; and
- producer surplus is the amount that producers benefit by selling at a price that is higher than the least price that they would be willing to sell for.

In the context of this NCBA, while consumer and producer surpluses do not capture all the wellbeing effects of gambling (e.g., as discussed in Section 5, they do not incorporate the non-financial costs to moderate-risk and problem gamblers), these concepts can be used to understand and quantify a large portion of the costs and benefits generated by gambling. A description of the economics rationale behind each is presented below.

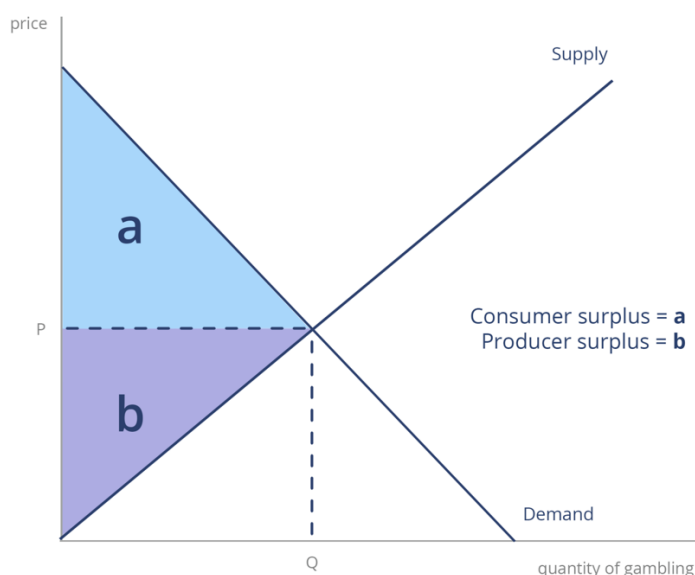
### Consumer surplus

Consumer surplus is the difference between the maximum price a consumer is willing to pay and the actual price they pay. If a consumer is willing to pay more for a unit of a good than the current asking price, they are getting more benefit from the purchased product than they pay. They are receiving the benefit of the obtainment of the good at a cost equal to the price they pay, with the difference being the net benefit or surplus to the consumer. Aggregate consumer surplus is the sum of the consumer surpluses of each individual.

### Producer surplus

Producer surplus is the difference between the actual price suppliers receive and their cost of supplying the good or service. The cost of supplying the good or service includes all of the costs the supplier incurs and their cost of capital. The producer surplus therefore differs from accounting measures of profit as it deducts the cost of capital to derive the economic surplus or economic value added. Aggregate producer surplus is the sum of the consumer surpluses of each producer. Aggregate consumer and producer surpluses are represented graphically in the market demand and supply curves in Figure 12 below.

**Figure 12: Consumer and producer surpluses**



Area a represents consumer surplus - the triangle below the demand curve and above the equilibrium price of the good that the consumer pays. Consumers would have been willing to buy a single unit of the good at a price higher than the equilibrium price, a second unit at a price below that but still above the equilibrium price, etc, yet they in fact pay just the equilibrium price for each unit they buy.

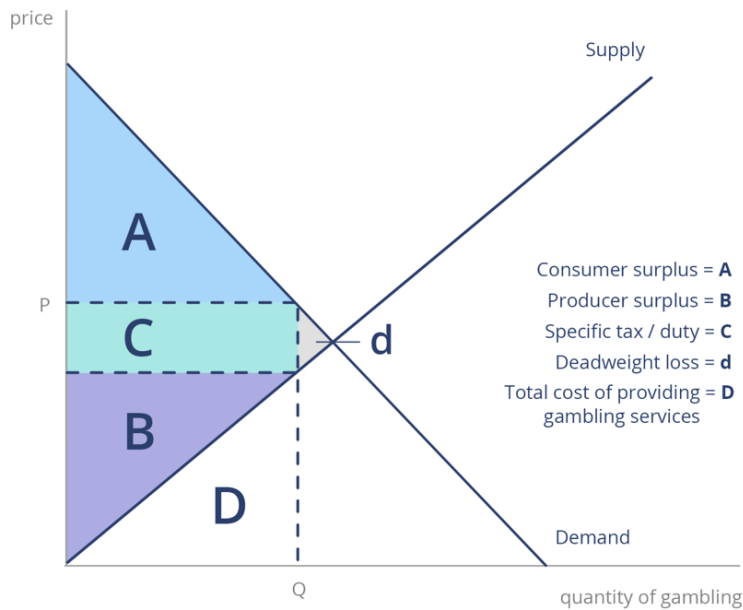
Area b represents producer surplus - the area below the equilibrium price but above the supply curve. Producers would have been willing to supply the first unit at a price lower than the equilibrium price,

the second unit at a price above that but still below the equilibrium price, etc, yet they in fact receive the equilibrium price for all the units they sell.

### Transfers

In the absence of taxation and duties, consumer surplus would be entirely received by consumers and producer surplus would be entirely received by producers. However, this is often not the case. In particular, specific taxes and duties (such as the excise duties on tobacco and alcohol or gambling duties) must be taken into account. Specific taxes and duties effectively 'transfer' a portion of consumer and producer surpluses to the Government. This is evident in Figure 13 below, whereby area C represents a specific tax / duty.

**Figure 13: Consumer and producer surpluses with specific tax / duty**



With a specific tax, consumer surplus becomes area A and producer surplus becomes area B. Areas A and B are smaller than a and b in Figure 12 on the previous page, as a portion of the consumer and producer surpluses has now been transferred to the Government. While now received by the Government, area C still represents a part of the surplus to society, with total surplus is now the summation of A, B and C.

Area d is a deadweight loss to society and represents the lost efficiency resulting from government taxes and regulations. We do not include that deadweight loss in our calculation of the net wellbeing effects of gambling as a similar deadweight loss would arise in the counterfactual (no gambling), where the Government would have to raise the revenue from gambling foregone from other tax sources.

Area D represents the total cost of providing gambling service to gambling operators (Lotto, TAB, Class 4 and casinos), including the Problem Gambling Levy and gambling fees.

In Section 4 of this NCBA analysis to follow, area A (consumer surplus) is estimated based on information on price and quantity of gambling, alongside estimation of the slope of the demand curve. Areas B (producer surplus), C (transfers to the Government) and D (total costs of gambling services) are sourced from revenue and cost data.



### 3.3 Application of NCBA to gambling

We apply the framework described above in our analysis of the costs and benefits of gambling.

Our NCBA assesses the net wellbeing benefits or costs of gambling in aggregate. We do not attempt to quantify the costs and benefits of the individual gambling types. To look at gambling sectors individually complicates the analysis, largely due to the issue of substitutability between the different gambling types. There is inadequate information in New Zealand on cross-elasticities between the different gambling forms. If, for example, one was to calculate the costs and benefits of betting at the TAB, in the counterfactual (where there is no TAB), a portion of participants would not stop gambling, they would simply switch to another type of gambling, or take their betting online. In this study no such substitution between different types of gambling needs to be considered given our assessment is of gambling in aggregate.

We assess the costs and benefits of gambling against a hypothetical counterfactual in which all forms of gambling, including online gambling, are banned. This means we assume:

- there is no Lotto, TAB, Class 4 or casino gambling; and
- online gambling (offshore and onshore) does not take place.

For simplicity, we assume that illegal or underground gambling does not occur, although as discussed in Section 1 above, history suggests that people would find illegal or underground ways to gamble. Problem gamblers in particular may be likely to find ways to continue to gamble.

As is standard for NCBA, our analysis calculates the costs and benefits to the wellbeing of New Zealanders as whole. As noted above, no distinction is made in a NCBA regarding which individual New Zealand residents experience changes in welfare – the criterion is the total wellbeing of all New Zealand residents, independent of its distribution.

To analyse the costs and benefits of gambling to New Zealand, this report follows standard NCBA practice by considering the costs and benefits of gambling in two categories:

1. Costs/benefits that are quantifiable in monetary terms; and
2. Costs/benefits that are not quantifiable in monetary terms.

In principle, we seek to capture all material wellbeing effects of gambling in New Zealand, including those that cannot reliably be measured in dollar terms. Of particular relevance to the gambling industry are the non-financial costs incurred or created by moderate-risk and problem gamblers.

For the quantifiable costs and benefits, costs and benefits are divided into three groups: consumption-side, production-side and gambling duties.

For the consumption-side and production-side costs and benefits, we analyse in turn:

1. quantifiable gross benefits;
2. quantifiable costs; and
3. the resulting quantifiable net benefit (gross benefits minus costs).

Gambling duties (which represent a transfer of surplus to the Government) are captured as a gross benefit.

For those costs and benefits that cannot be quantified reliably in monetary terms, each major cost and benefit is identified and discussed in qualitative terms. We quantify the costs and benefits of gambling in monetary terms where there is a good evidence base to do so. A key form of cost/benefit where data

has not been sufficient for reliable quantification is harm-related costs of gambling. Subsection 5.2 presents our qualitative analysis of this in detail.

All calculations in our analysis are presented in GST-exclusive \$ p.a. based on the values for 2019.<sup>72</sup>

GST is excluded from NCBA calculations because, as noted in Subsection 3.2 above, if there were no gambling, consumer spending would be transferred to other goods and services. No GST would be collected from gambling, but the foregone government revenue would be replaced in large part if not fully with GST collected from the sale of other products.<sup>73</sup> Accordingly, GST collected on gambling is not an additional benefit to society of gambling and all figures in the analysis (Sections 4 to 6 of this report) are GST exclusive.

Alongside GST, gambling operators are subject to paying duties - lotteries duty; betting duty; gaming machine duty and casino duty. As noted in Figure 13 in the previous subsection, duties effectively transfer a portion of the total surplus of gambling to the Government. That is, duties are not an additional source of surplus for society, rather they transfer some of the surplus that would otherwise accrue to consumers and producers to the Government. These duties are additional revenue to the Government from gambling – i.e., unlike GST, the revenue arising from the duties would not be collected if gambling was not permitted. Section 4.4 discusses gambling duties.

It is sometimes claimed that the jobs arising in a sector are a net benefit to society from the sector.<sup>74</sup> While jobs have considerable benefits to the person employed, their family and their employer, from a national perspective a job created in one sector means the person employed cannot be employed elsewhere: i.e., there is an opportunity cost associated with employing a person. Thus, in general terms jobs are not a net benefit to society<sup>75</sup> and we do not treat the jobs created by gambling as a net benefit to society in this NCBA. Having said that, the gambling sector is a major direct and indirect employer, accounting for many thousands of jobs either directly or indirectly in the hospitality industry. If gambling were banned there would be major adjustment costs as many of these people lost their jobs and had to retrain and find suitable employment elsewhere in the economy. Those adjustment costs are material for society as a whole, but they are difficult to quantify reliably. Because they are difficult to quantify reliably, we discuss the employment-related adjustment costs that would arise if gambling was banned in the section of this report on the non-quantifiable costs and benefits of gambling (Section 5).

In summary, the framework we use for assessing the national wellbeing costs and benefits of gambling in New Zealand is provided in the table on the following page.

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<sup>72</sup> Gambling expenditure figures for 2020 have been released, but we use the 2019 figures as the 2020 data is likely to be distorted by the impacts of Covid-19.

<sup>73</sup> Although to the extent gambling went underground the Government would forgo GST revenue.

<sup>74</sup> BERL (2019, p. 3 and 2020, p.9) appears to make this claim when it states employment is a benefit of gambling. The BERL reports are not clear on what benefits of employment are being referred to and do not quantify the benefits.

<sup>75</sup> An exception is when there are sustained high levels of unemployment and the opportunity cost of employment is low or zero (as the person would otherwise be unemployed). However, while Covid-19 has seen a recent spike in unemployment, the norm in New Zealand has been for unemployment to be low in recent times. The unemployment rate in New Zealand has stayed close to or within the Reserve Bank's estimates of the non-accelerating inflation rate of unemployment (NAIRU) since 2015. NAIRU is what economists refer to as effective full employment. <https://www.rbnz.govt.nz/-/media/ReserveBank/Files/Publications/Monetary%20policy%20statements/2020/mpsfeb20.pdf?revision=ff0f111b-a85b-4443-af6d-1d14ab1c4ec2>

**Table 6: National Wellbeing Cost-Benefit Analysis of Gambling framework**

National Wellbeing Cost-Benefit Analysis of Gambling in New Zealand					
Quantifiable in monetary terms:					
Gross benefits	p.a., \$m	Quantifiable costs	p.a., \$m	Quantifiable net benefits	p.a., \$m
<b>Consumption-side</b>					
<b>Production-side</b>					
<b>Gambling duties</b>					
<b>Total</b>					
Not quantifiable in monetary terms:					
Non-quantifiable benefits			Non-quantifiable costs		

## 4 Costs and benefits quantifiable in monetary terms

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### 4.1 Introduction

This section analyses the costs and benefits of gambling that can be quantified in monetary terms. These costs and benefits fall into three categories:

- consumption-side;
- production-side; and
- gambling duties.

For each of these three categories, we quantify:

1. the gross benefits;
2. the quantifiable costs; and
3. the net benefits (gross benefits minus quantifiable costs).

### 4.2 Consumption-side

#### Introduction – the nature of the benefits to gamblers

In many ways, gambling is not dissimilar to other goods or services. Individual gamblers (consumers) trade their time and financial resources in exchange for expected benefits. However, unlike most other things one can spend their money on, at the end of an evening betting someone may walk out with more money than they came in with. On average though, a person is more likely to walk out with less money than they came in with. So why do people gamble? How do people benefit from buying Lotto tickets, betting, playing pokies or casino gambling when on average they will lose money?

What motivates a person to gamble (in other words, the benefit the individual expects to receive from gambling) has been studied extensively and probably differs from person to person and among game type. Table 7 below summarises some of the recent literature on the motivation to gamble.

**Table 7: Mapping of studies on gambling motivation**

Study	Motivation for gambling (in order of prevalence)			
National Gambling Study (2012)	<b>Lotto:</b> - win prizes/money - as a gift	<b>TAB:</b> - win prizes/money - excitement/challenge	<b>Class 4:</b> - win prizes/money - as entertainment	<b>Casinos:</b> - win prizes/money - as entertainment
<i>New Zealand</i>	- excitement/challenge - support worthy cause - entertainment - out of curiosity	- entertainment - as an interest/hobby - out of curiosity - to be with people/get out of the house	- excitement/challenge - to be with people/get out of the house - out of curiosity - as an interest/hobby	- excitement/challenge - be with people/get out of the house - as an interest/hobby - out of curiosity
Productivity Commission of Australia (1999)	<b>All gambling forms:</b> - dream of winning - social reasons - for charity			
<i>Australia</i>	- beating the odds - favourite activity - atmosphere/excitement - belief in luck - boredom/pass the time			
Rossen (2008)	<b>All gambling forms (for youths aged 12 to 18):</b> - enjoyment			
<i>New Zealand</i>	- to win money - excitement - relieve boredom - for a challenge			
Binde (2013)	<b>One common motive:</b> - chance of winning	<b>Four optional motives:</b> - dream of hitting jackpot - social rewards - intellectual challenge - mood change		
<i>Sweden</i>				
McNeilly & Burke (2000)	<b>All gambling forms (for elderly aged 65+)</b> - to relax and have fun - to get away for the day - for inexpensive meals at the casino - to pass time - to meet new people			
<i>USA</i>				
Parke, (2015)	<b>Racing betting</b>	<b>Gaming machines</b>	<b>Casino table games</b>	<b>Poker</b>
<i>USA</i>	- affiliation - challenge & mastery - excitement	- relaxation & escape - autonomy - excitement	- autonomy - excitement - relaxation & escape	- challenge & mastery - affiliation - self affirmation

Common motivations for gambling identified in many studies include: to win money; for entertainment and excitement; for escape and relaxation; and to socialise. While each of the motivations may operate independently, the 'why' for most participants is likely to be a combination of many reasons.

In summary, the majority of people who gamble do so because they find it an enjoyable activity. This is observed by Suits (1979, p. 155), who states:

*Gambling is a recreational activity or a kind of participation sport from which the principal satisfaction derives from the activity itself and from the ebb and flow of wins and losses rather than from ultimate outcome - the net amount won or lost. For most gamblers, the purpose of gambling is not to get rich, but to "have fun," to experience "excitement," or to have "something to look forward to," and they view payment for this recreation in the same light as others look on outlays for theatre tickets, vacation trips, or a night on the town.*

The 7 out of 10 New Zealand adults who gambled recreationally in some form last year did so to gain an enjoyment benefit, which can take a number of forms. The nature of this enjoyment varies for each individual and often differs between gambling types.

For example, the average:

- Lotto player may enjoy the thrill of being in the draw and the dream of their lifestyle if they win the jackpot;
- sports better may enjoy accumulating knowledge and testing their ability to analyse and predict the winner or may simply enjoy backing their favourite team;
- Class 4 player may enjoy the relaxation or escapism of gaming machines; while an average
- casino gambler may enjoy testing their luck and skill across a range of table games.

Gambling for the non-addicted gambler may also be an avenue for socialising, stress relief and a way of having fun. Contrary to how it may appear from a non-gambler perspective, gamblers do not necessarily anticipate they will make money from gambling. Parke (2015) states:

*"Players mostly realise that they are paying for a leisure experience. They are not expecting to be paid, except for a small minority, who are going to earn an income as a professional gambler."*

New Zealanders choose to spend millions each year across the different forms of gambling — that people choose to spend money on an activity is an indicator of the value many place on the activity. With different choices for spending their time and money, a non-addicted gambler who chooses to use their money on a lotto ticket, sports bet, pokie machine or roulette wheel is enjoying it, or they would simply spend their money elsewhere.

Different individuals choose to spend money on gambling in order to obtain different enjoyment benefits. The important question that follows is 'can these benefits be quantified?'; i.e., what is the magnitude of this enjoyment? While it is not possible to estimate the magnitude of the benefits for each individual person who gambles, it is possible to estimate in monetary terms the net enjoyment benefits to gamblers in New Zealand in aggregate. This can be done using the concept of consumer surplus.

## **Consumer surplus**

Economists traditionally measure net consumption benefits (i.e., gross benefits less costs) by estimating consumer surplus. Consumer surplus is not a money flow, but rather a valuation in monetary terms of the net consumption or net welfare benefit from a good or service. In the case of gambling, estimating consumer surplus provides a means of valuing the net enjoyment benefits received by non-addicted gamblers. Treatment of at-risk gamblers is discussed on the following page.

To explain the idea of consumer surplus, the following story has been extracted from Forrest (2015).

*Suppose I live in a village with a restaurant. How often I eat there depends on the price it charges for dinner. As long as the price is no more than \$50, I will go there once a month. It'll be a treat and I place a value of \$50 on the satisfaction I anticipate from the occasion, hence my willingness-to-pay of \$50.*

*If the price is sufficiently lower, say \$40, I would go there for two dinners in a month. \$40 is my willingness-to-pay for the second dinner. This is below my willingness-to-pay for the first dinner, because the second dinner would not be as novel as the first, and I would thus expect to gain less satisfaction from its consumption. By similar reasoning, my willingness-to-pay for the third dinner in the month is lower still, \$30.*

*As it happens, \$30 is the price the restaurant charges, and so I am inclined to purchase three dinners per month. This is my 'quantity demanded' at a price of \$30.*

*How much better off am I because there is a restaurant in the village? I am willing to pay \$50 for the first dinner, which means that I expect \$50 worth of satisfaction, but I only pay the market price of \$30. Hence, I enjoy a 'surplus' of \$20 from the transaction. This is not a money flow, but rather a valuation of the enjoyment I received from my dinner. My willingness-to-pay for the second dinner was \$40, enjoying a surplus of \$10, while my expected value from the third dinner was \$30 and it cost me \$30, leaving me no better off for eating the dinner (I could have got the same satisfaction from spending the \$30 elsewhere.) The marginal unit consumed does not deliver consumer surplus, but those up to the margin do.*

*It is evident that the presence of the restaurant in my village is worth \$30 a month to me. I eat there three times, and the transactions together give me \$30 (\$20 + \$10 + \$0) of surplus. This is my consumer surplus. Consumer surplus (here \$30), rather than the revenue of the producer (here \$90) is the economic measure to assess the value of a product to the consumer. It is formally defined as the excess of willingness-to-pay over price.*

Source: Forrest (2015).

## **Application of consumer surplus to gambling**

Consumer surplus is employed in cost-benefit analysis across a wide range of spheres in public policy and can be employed to understand and calculate the consumption-side costs and benefits of gambling.

The Productivity Commission of Australia (1999) pioneered the use of consumer surplus as a way of evaluating the consumption-side effects of gambling. Their report looked not at a village but at Australia, and not at the presence of a restaurant but at the presence of gambling – analysing the net consumption benefit to people who gamble. Forest (2015) employed a similar methodology to estimate the consumption-side effects of gambling in Great Britain. While the concept of consumer surplus originates from welfare economics, its application to gambling is also evident in the public health sphere. Browne et al. (2019) states:

*Gambling is also a recreational activity, presumed to yield 'consumer surpluses' in terms of social and hedonic benefits.*

In our analysis, the village described above is New Zealand and the presence of the restaurant is now the presence of the four gambling types – Lotto, TAB, Class 4 and Casinos. Estimating consumer surplus provides a monetary valuation of the net enjoyment value of gambling to participants.

Alongside providing an illustrative explanation of what consumer surplus represents, Forrest (2015)'s story highlights a key point: consumer surplus represents the net benefit to consumers, i.e., the gross benefit minus the quantifiable cost. In the example above, the narrator values the satisfaction of their first meal at \$50, whilst the price they pay for it is \$30. This represents a gross benefit of \$50, cost of \$30, and a subsequent net benefit (consumer surplus) of \$20. In Figure 13, (Section 3, p. 40), gross

benefit (willingness to pay) is all of A, B, C and D; cost to consumers is areas B, C and D, while consumer surplus is area A.

The analysis that follows in this section is structured in the same way – presenting gross benefits, quantifiable costs and net benefits.

## Treatment of at-risk gamblers

### Problem gamblers

Consumer surplus is an appropriate means of estimating the net enjoyment benefits to the vast majority of gamblers. But does the same apply to the 8,000 problem gamblers in New Zealand? If problem gamblers are treated in the same way as other consumers, their consumer surplus would be large. This is because their average spend is significantly higher than other gamblers and because their demand is expected to be less sensitive to changes in price. This insensitivity to price typically indicates that the individual values that product highly. In the case of a problem gambler however, this insensitivity to price changes is likely the result of an inability to control their spending on gambling (usually despite a desire to do so).

As highlighted in the story above, consumer surplus applies when consumers are rational decision-makers. However, at least a significant portion of decision making by problem gamblers is not considered rational.<sup>76</sup> Calculating consumer surplus for this group would be assigning consumption benefits to a population of gamblers who are likely not benefitting much at all from their gambling. In our calculation of consumer surplus for all gamblers in New Zealand, there are two options:

1. assume problem gamblers benefit from some, but not all of their gambling spend; or
2. assume problem gamblers receive no benefits from gambling.

Assuming problem gamblers receive some benefits from their gambling is not uncommon in gambling literature. In its calculation of total consumer surplus, the Productivity Commission of Australia (1999) assumed problem gamblers receive benefits from gambling spend up until a certain point, while all spending above that point is no longer deemed recreational and is assigned no benefit. Also, Browne et al (2019) found that higher-risk gamblers experience more benefits than non-problem gamblers from gambling – as well as more costs.

In this analysis however, we deem it appropriate to assume the 8,000 problem gamblers in New Zealand receive no benefits from gambling. Assigning a portion of benefits to problem gamblers would involve a value judgement on what portion of their spend could be considered 'responsible' and what portion is considered 'problematic'. Assigning no benefits is both more straightforward and more conservative (i.e., it means our findings tend to understate the overall net social benefits of gambling in this regard).

### Moderate-risk gamblers

Furthermore, we make the conservative assumption that the 69,000 moderate-risk gamblers in New Zealand also receive no enjoyment benefits from gambling. Again, this means our findings tend to understate the overall net social benefits of gambling in this regard.

As established in Subsection 2.6, moderate-risk gamblers are considered higher-risk than the average gambler, though it is important to note that the moderate-risk gamblers display different characteristics and behaviour to problem gamblers. Shen et al. (2015) found problem gamblers engage more and more diversely in gambling activities than moderate-risk gamblers. Comparatively, moderate-risk gamblers spent significantly less than problem gamblers (\$58 per month vs. \$850), engaged less in other addictive behaviours such as hazardous drinking (20% of participants vs. 39%) and a lower

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<sup>76</sup> Some academic literature on 'rational addiction' such as Becker & Murphy (1998) states that addictions can be usefully modelled as specific kinds of rational, forward-looking, optimal consumption plans, but we do not adopt this approach.



portion displayed psychological distress than problem gamblers (22% of participants vs. 50%). While problem gamblers may gamble to a point beyond individual control, moderate-risk gamblers do not tend to display behaviour of such extremity.

While moderate-risk gamblers may gamble to an extent that causes harm (potentially to themselves or to others), it can be argued that this group still receive enjoyment benefits from their gambling, and not all their gambling expenditure represents irrational decision-making. Nonetheless, further erring on the side of conservatism, we assume no enjoyment benefits for the 69,000 moderate-risk gamblers. The financial costs to this group, alongside the financial costs to the 8,000 problem gamblers is incorporated in our quantitative estimates of the net benefits of gambling as discussed below.

### Low-risk gamblers

It is not common among previous studies,<sup>77</sup> nor considered appropriate in this NCBA, to assign no benefits to the population of around 177,000 low-risk gamblers in New Zealand. As defined by Ferris and Wynne (2001), this group is unlikely to have experienced any adverse consequences from gambling and will have answered ‘never’ to most of the indicators of behavioural problems in the PGSI.<sup>78</sup> As with non-problem gamblers, gamblers in this group are assumed to make rational decisions, choosing to gamble (at a financial cost), in order to enjoy consumption benefits.

## Quantifying the costs and benefits to consumers

As has been established, consumer surplus is the net consumption benefits – i.e., the gross benefits (willingness-to-pay) minus the quantifiable costs. These three components within our NCBA are presented in Table 8 below.

**Table 8: NCBA framework – consumption-side**

National Wellbeing Cost-Benefit Analysis of Gambling in New Zealand					
Quantifiable in monetary terms:					
Gross benefits	p.a., \$m	Quantifiable costs	p.a., \$m	Quantifiable net benefits	p.a., \$m
<b>Consumption-side</b>					
Enjoyment benefit to gamblers:	?	Quantifiable cost to gamblers:	?	Consumer surplus:	?

In the next subsections, we estimate the value of the costs and benefits to consumers from gambling by:

- first discussing the gross benefits;
- followed by the financial costs; and
- then estimating the net benefits (the consumer surplus).

### The gross benefits to gamblers

The gross consumption-side benefits are equal to the total enjoyment value gained by gamblers. This is equal to the sum of the willingness-to-pay of all rational decision-making gamblers. In Figure 13 in the framework section, gross benefit (willingness to pay) is all of A, B, C and D.

As discussed above, we make the conservative assumptions that problem gamblers and moderate-risk gamblers receive no benefits from gambling. This means our valuation of the benefits to gamblers

<sup>77</sup> Productivity Commission of Australia (1999, 2010), Forest (2015).

<sup>78</sup> Ferris and Wynne (2001).

is calculated based on the enjoyment benefits of the remaining portion of people who gamble, the great majority of whom are non-problem gamblers, alongside a smaller population of low-risk gamblers.

While it may appear counterintuitive, estimating the gross benefit to gamblers first requires estimation of the consumer surplus (i.e., the net benefits). Having calculated the net benefits, it is possible to use backwards induction to find the gross benefits (by adding the net benefits to the quantifiable costs). This follows on p. 54.

## The quantifiable costs to gamblers

The quantifiable cost to gamblers is equal to their expenditure<sup>79</sup> which totalled \$2,089m in 2019 (GST exclusive). This amount is expenditure by all gambler types.

Though breaking down this total quantifiable cost by gambler type is not necessary in a NCBA, it is useful to highlight that the financial cost of gambling for the different gambler types can differ significantly. The cost of gambling for an average non-problem gambler could be compared to a night at the movies, while for an average problem gambler, the financial cost is likely far higher. The frequency of gambling and size of spend tends to increase the higher up the PGSI an individual is, meaning for some the financial costs can be significant.

At the highest end, the financial costs of gambling can have serious consequences to individuals and their affected others, like family members. Financial costs from gambling can contribute to: a loss of capacity to meet everyday needs; the loss of major assets like cars and homes; and bankruptcy.<sup>80</sup> Sapere (2018) describe financial loss as a key driver of gambling harm, largely due to the ability of financial losses to cause or trigger other harms such as relationship disruption, health issues and psychological harms. Unlike the gambling harms discussed in Section 6, the financial costs to gamblers (in aggregate) are quantifiable and are incorporated within our estimates of the net quantifiable benefits of gambling.

## The net benefits to gamblers

The calculation of the net benefits to gamblers or consumer surplus made in this report is based on the methodology employed by the Australian Productivity Commission (1999).<sup>81</sup> Using a simple linear approach, consumer surplus ( $CS_n$ ) can be calculated using the following formula:

$$CS_n = (p_n * q_n) / -2\epsilon_n$$

Where:

$p_n$  = price, calculated as  $(1 - \text{the probability of winning})$ . As discussed below, the price of gambling - the price paid to engage in the activity - is the expected loss on a dollar bet.

$q_n$  = the 'quantity' of gambling product consumed by gamblers at the current price. This is estimated by dividing the amount of money spent on gambling (expenditure) in a year by the price.<sup>82</sup> Given problem gamblers and moderate-risk gamblers are assigned no benefits, their expenditure has been excluded from this estimate.

$\epsilon_n$  = the price elasticity of demand for gambling products estimated around the current price.

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<sup>79</sup> As defined in Subsection 2.2, expenditure on gambling is total turnover on gambling products minus the amount the consumers receive back in credits, prizes or dividends. It is equivalent to the amount consumers in aggregate lose on gambling.

<sup>80</sup> Abbott et al. (2016), Browne et al. (2017), Productivity Commission of Australia (1999).

<sup>81</sup> Originally derived from Suits (1979) and Willig (1976).

<sup>82</sup> Quantity is therefore equal to turnover.

A technical adjustment to the methodology for quantifying the net benefits to consumers is an adjustment for the “compensated demand curve.” As noted above, consumer surplus represents the difference between the amount a consumer pays for a product and the amount they are prepared to pay. However, requiring consumers to pay the surplus would reduce their available disposable income, thus reducing the actual amount they would spend on gambling. In order to account for this effect (known as the income effect) and create a more accurate measure of consumer surplus as welfare, economists calculate what is called the ‘compensated demand curve’. As is evident in the results below, the effect of making this adjustment is minimal.

The adjusted consumer surplus is estimated by:

$$CS_{n1} = CS_n - 0.5CS_n (\epsilon_n^i) (s_n)$$

Where:

$\epsilon_n^i$  = income elasticity of demand for gambling by gamblers.

$s_n$  = share of gambling expenditure in income.

A discussion of the inputs into this calculation follows.

### Price

The price of gambling - the price paid to engage in the activity - is the expected loss on a dollar bet. As detailed above, most gamblers expect to lose on average; they don't bet to get rich, but for various forms of enjoyment. The price of gambling represents the payment for this recreation.

Numerically, the price gamblers pay is equal to the average “take” the service provider collects on a dollar bet. An example of price can be seen with roulette. Both American and European roulette pay 35 to one on single wagers. American roulette, with the numbers 1 to 36, a zero and a double zero, has 38 equally likely outcomes, whereas European roulette, with only a single zero, has 37 outcomes. As a result, American roulette is approximately twice as expensive to play as European roulette – the price or “house advantage” for most wagers at American roulette is 2/38 or 5.3%, whereas European roulette has a price or “house advantage” of 1/37 or 2.7%.<sup>83, 84</sup>

In this study, we estimate the average price for all gambling in New Zealand by calculating a weighted average price where the price of each of the four gambling types is weighted by the turnover of the respective gambling type, as shown in Table 9 below.

**Table 9: Weighted average price of gambling**

	Return to player %	Estimated price \$ per \$1 bet	Turnover \$m	Expenditure \$m
Lotto	55	0.45	1,022	461
TAB	85	0.15	1,963	289
Class 4	91	0.09	9,012	803
Casinos*	89	0.11	4,869	536
All gambling (weighted average price, excl. GST)	-	0.11	16,867	2,089

<sup>83</sup> Likely due to this price differential, roulette is a fairly minor table game in the United States, whereas in the United Kingdom it is often the dominant revenue generator among table games. This provides an indication of the price sensitivity of consumers.

<sup>84</sup> Eadington (1999).

*Note: Information on turnover and prizes for casinos (and therefore price) is not publicly available in New Zealand. We have assumed the Australian Productivity Commission (1999) price estimative of \$0.11.*

## **Quantity**

Quantity is calculated as expenditure / price. Deducting the estimated expenditure by moderate-risk and problem gamblers of \$412m<sup>85</sup> from total gambling expenditure gives 'benefit accruing' expenditure of \$1,990. Dividing this by the price gives a quantity of 16,067.<sup>86</sup>

## **Elasticity of demand**

The price elasticity of demand (PED) measures the extent to which the quantity consumed of a particular product changes when its price changes. A product is said to have elastic demand (that is, a PED greater than one in absolute terms) when the quantity purchased changes proportionately more than the price. For example:

- if a 50% reduction in price results in the consumer purchasing three times as much, demand is said to be relatively elastic; and
- if a 50% reduction in price results in the consumer only purchasing 10 per cent more, demand is said to be relatively inelastic.

The PED provides an indication of the consumer's 'preparedness to pay' for a good or service.

Numerous studies have been conducted on the price elasticity of demand for gambling internationally. A summary of the findings is presented in Appendix 4. Based on this survey and aligning with the Australian Productivity Commission (1999), we consider an appropriate range for the PED for gambling in aggregate to be:

- a low elasticity estimate of -0.8; and
- a high elasticity estimate of -1.3.

These estimates are of the same order of magnitude as the only New Zealand-based estimate of elasticities of gambling in New Zealand that we are aware of, by BERL in 1997.<sup>87</sup>

The sensitivity of the estimates of the net consumer benefits from gambling to the assumed PED and other assumptions is provided in Section 6.

## **Income elasticity of demand and budget share**

We use the Australian Productivity Commission's (1999) estimate for the income elasticity of demand for gambling of 0.79. Likewise, we use the Australian Productivity Commission's estimate of the gambling budget share for non-problem gamblers of 2.6%. These assumptions are inputs to the compensated demand curve estimates and have little impact on the overall results.

## **Results**

Our estimate of consumer surplus, before adjusting for the compensated demand curve, is presented in Table 10 below.

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<sup>85</sup> Discussion of this estimate is presented in Appendix 3.

<sup>86</sup> This is equal to GST-exclusive turnover minus turnover relating to moderate-risk and problem gamblers.

<sup>87</sup> BERL (1997) found the price elasticity of demand for EGMs and casinos in New Zealand to be -0.8 and the elasticity for Lotto and Instant Kiwi to be -1.05 (refer Appendix 4).

**Table 10: Estimated consumer surplus**

Net benefits to gamblers	per annum, \$ million
Low elasticity	1,081
High elasticity	665

The results of the adjusted consumer surplus (incorporating the compensated demand curve) are presented in the table below.

**Table 11: Adjusted consumer surplus**

Net benefits to gamblers	per annum, \$ million
Low elasticity	1,070
High elasticity	654

As Table 11 shows, the adjustment for the income effect associated with the compensated demand curve is minor (around \$11 million p.a.).

Overall, our analysis indicates that the value of net benefits to recreational gamblers is in the range of around \$650m to \$1,100m p.a.

## The gross benefits to consumers

Having established the quantifiable costs and estimated the quantifiable net benefits to gamblers, it is now possible to ascertain the gross enjoyment benefits to gamblers. The gross benefits (i.e., total willingness to pay) of gamblers can be found by summing the quantifiable net benefits and quantifiable costs to consumers (i.e., the sum of A, C, B, D in Figure 13 (p. 40)). As the completed table below indicates, the estimate of the gross benefits to gamblers is in the range of \$2,740m to \$3,160m p.a.

Figures in the NCBA tables are rounded to the nearest \$10m.

**Table 12: NCBA estimates – consumption-side**

National Wellbeing Cost-Benefit Analysis of Gambling in New Zealand					
Quantifiable in monetary terms:					
Gross benefits	p.a., \$m	Quantifiable costs	p.a., \$m	Quantifiable net benefits	p.a., \$m
<b>Consumption-side</b>					
Enjoyment benefit to gamblers:	2,740 to 3,160	Quantifiable cost to gamblers:	2,090	Consumer surplus:	650 to 1,070

Table 12 above presents the results of the analysis in this section:

- a gross benefit in the form of enjoyment to gamblers of between \$2,740 and \$3,160m p.a.;<sup>88</sup>
- which comes at a cost of around \$2,090m p.a.; resulting in
- a net quantifiable benefit to people who gamble (known as consumer surplus) worth between \$650m and \$1,070m p.a.

<sup>88</sup> Whilst assigning no enjoyment benefit to moderate-risk and problem gamblers.

As explained above, this net benefit is not a money flow per se, rather can be thought of as a monetary valuation of the net enjoyment value of gambling to participants.

## 4.3 Production-side

### Introduction

This section estimates the costs and benefits to the suppliers/providers of gambling services in New Zealand. We estimate the costs and benefits for each of the four major types of gambling separately: Lotto; TAB; Class 4; and Casinos and aggregate the costs and benefits to get the total production-side costs and benefits.

We estimate the gross benefits and the costs from published financial data and derive the net benefits (gross benefits less costs). The production-side net benefit is known in economics as ‘producer surplus’.

Producer surplus is sometimes referred to as ‘economic profit’ and generally accrues to the supplier and its shareholders. A particular feature of the gambling industries in New Zealand is that gambling operators are largely not-for-profit organisations, whereby the majority of the net benefits accruing to the suppliers of gambling services are distributed to the community. As is explained later in this section, in the case of Lotto and non-club Class 4 for example, 100% of net proceeds are distributed in grants to organisations in the community. In the case of Class 4 in clubs and the TAB, 100% of net proceeds are applied to authorised purposes for the benefit of the club / racing industry. In the same way that the great majority of gamblers gain wellbeing benefits from their enjoyment of gambling, the distributions of funds from the producer surpluses from gambling generate a range of wellbeing benefits to various groups across New Zealand.

The framework of gross benefits, costs and net benefits for producers mirrors the framework for consumers and is summarised in Table 13 below.

**Table 13: NCBA framework – production-side**

National Wellbeing Cost-Benefit Analysis of Gambling in New Zealand					
Quantifiable in monetary terms:					
Gross benefits	p.a., \$m	Quantifiable costs	p.a., \$m	Quantifiable net benefits	p.a., \$m
<b>Production-side</b>					
Revenue (excl. duties):	?	Costs to gambling operators	?	Producer surplus:	?

The net-benefit calculation on the production-side can be derived largely from publicly available data, either from the DIA or from the annual reports of the respective entities. In some cases, a lack of publicly available data requires some assumptions to be made, as is documented below.

In terms of Figure 13 in the previous section (p. 40), area B & D represent gross production-side benefits; area D represents costs and area B net benefits.

## Quantifying the gross benefits to producers

The gross benefits to producers of supplying gambling products are the revenues they generate from providing gambling services, less gambling duties.<sup>89</sup> Table 14 below presents the gross benefits by gambling type and in aggregate.

**Table 14: Production-side gross benefits, p.a., \$ million**

	Lotto	TAB	Class 4	Casinos	Total
Revenue (GST excl.)	461	288	804	536	2,089
Gambling duties	65	13	185	20	283
Gross benefits	397	275	619	515	1,806

As the table indicates, gross benefits to producers total around \$1,800m, p.a.<sup>90</sup>

## Quantifying the production-side costs

The production-side costs in this NCBA fall into the following four categories:

1. Operating costs;
2. Cost of capital;
3. Problem Gambling Levy; and
4. Gambling fees

The components of operating costs vary among the four gambling types, including: retailer / venue costs, betting related expenses, depreciation and other operating costs.

The cost of capital is the opportunity cost (next-best option foregone) of capital employed in production. In the same way that consumers forgo item Y when they purchase item X, producers forgo the opportunity to invest in producing item B when they invest in producing item A. This opportunity cost, alongside operating costs and the Problem Gambling Levy, is an important economic cost and is included in the NCBA.<sup>91</sup>

The cost of capital is calculated by multiplying an appropriate discount rate by the value of the capital employed. For the discount rate, we use the standard (New Zealand Treasury) discount rate of 6% (the real, pre-tax discount rate recommended by the Treasury for the telecommunications, media and technology, IT and equipment and R&D sectors).<sup>92</sup> This estimate of 6% is similar to Damodaran's estimate for the cost of capital for the hotel and gaming sector worldwide of 5.93%.<sup>93</sup> Damodaran's estimate uses data from 639 firms in the industry across the world.

The value of the capital employed is proxied by the book value of total assets in each of the four types of gambling in New Zealand. Using total assets (rather than funds employed) likely overstates

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<sup>89</sup> Payment of gambling duties has already been included in the consumption-side calculation, therefore duties are excluded from the production side. This implies that the ultimate bearer of the cost of gambling duties in this analysis (the "burden of tax") is assumed to be borne by the consumer. Regardless of who bears the burden of tax however, the overall net wellbeing amount for society does not change. Note also that the producer revenues exclude GST for the reasons discussed in Section 3 (Framework).

<sup>90</sup> Note: revenue has been rounded down to \$1,800m p.a. to avoid discrepancies in NCBA tables when rounding the total figures to the nearest \$10m.

<sup>91</sup> Cost of capital can also be understood as an annualised proxy for the rental price of capital employed.

<sup>92</sup> <https://www.treasury.govt.nz/information-and-services/state-sector-leadership/guidance/financial-reporting-policies-and-guidance/discount-rates>

<sup>93</sup> <http://people.stern.nyu.edu/adamodar/pdfiles/papers/costofcapital.pdf>.

somewhat the capital employed and therefore the cost of capital and therefore understates the resultant net benefits somewhat.

The Problem Gambling Levy is levied directly on each gambling operator as a way of covering the costs incurred by the MoH relating to gambling harm.<sup>94</sup> It is a cost that accrues directly to gambling operators and is therefore included in the production-side rather than the following section of this analysis. The rate for Problem Gambling Levy is set by Order in Council and reviewed every three years. The current Problem Gambling Levy rates, as at 1 July 2019, are presented in Table 15 below.

**Table 15: Problem Gambling Levy rates, 2019**

Operator	% of revenue (GST exclusive)
Lotto	0.43
TAB	0.52
Class 4	0.78
Casinos	0.56

The regulation and administration costs of gambling incurred by the DIA and Gambling Commission are recovered from Class 4 and Casinos in the form of gambling fees. Likewise, these costs accrue directly to gambling operators and are therefore included in the production-side costs. Gambling fees are administered by Section 370 of the Gambling Act, which enables the recovery of direct and indirect costs of the Gambling Commission and DIA in administering, enforcing and monitoring the Act.

Class 4 fees are charged annually on venues and operators, alongside fees for licence applications and renewals. Similarly, Casinos are charged an annual operator fee and for licence renewals and amendments.<sup>95</sup>

Our estimates of the quantifiable costs relating to each of the four gambling types are discussed below.

### Lotto

The operating costs and Problem Gambling Levy estimates for Lotto provided below are from Lotto NZ's Annual Report for 2018/19. The cost of capital has been calculated using total reported assets of \$122m.

**Table 16: Quantifiable costs, Lotto**

Cost	per annum, \$ million
Retailer commission	73
Other operating expenses	70
Cost of capital	7
Problem Gambling Levy	2
Total costs	152

<sup>94</sup> Section 320 of the Gambling Act provides a formula for calculating the levy, whereby:

$$\text{levy rate} = \frac{((A \times W1) + (B \times W2)) \times C \pm R}{D}$$

Where:

A is the estimated current player expenditure in a sector divided by the total estimated current player expenditure in all sectors subject to the levy.

B is the customer presentations to problem gambling services that can be attributed to gambling in a sector divided by total customer presentations to problem gambling services in which a sector that is subject to the levy can be identified

C is the funding requirement for the period for which the levy is payable.

D is the forecast player expenditure in a sector for the period during which the levy is payable.

R is the estimated under-recovery or over-recovery of levy from a sector in previous levy periods.

W1 and W2 are weights, the sum of which is 1.

<sup>95</sup> See <https://www.legislation.govt.nz/regulation/public/2015/0313/latest/whole.html#DLM6673498>.



## TAB

The operating cost and Problem Gambling Levy estimates provided below for the TAB are from the TAB's Annual Report for 2019. The cost of capital is calculated using total betting-related assets of \$133m. While the TAB owns and operates Class 4 gaming machines, these assets are not included in this estimate of total assets (rather they are included in the Class 4 total assets).

**Table 17: Quantifiable costs, TAB**

Cost	per annum, \$ million
Betting related expenses	140
Cost of capital	8
Problem Gambling Levy	2
Total costs	149

## Class 4

Our estimates of Class 4 producer surplus (and the intermediate calculations to get to this producer surplus) include estimates of the surpluses generated by traditional gaming (non-club) societies and club societies.

The producer surplus for Class 4 is calculated using GMANZ data<sup>96</sup> on the average proportions of the distributions of gambling machine profits by societies.<sup>97</sup> The assumption is made that the operating costs and costs of capital for clubs with Class 4 gaming machines is the same as for non-clubs.

The exact value of the sector's assets is unknown but can be estimated using the annual reports of the ten largest traditional gaming society providers of Class 4 gambling. These ten societies had total gambling revenue of \$523m or 57% of total revenue from all Class 4 in 2019. The ten societies had total assets of \$136m which equates to 26% of their gambling net revenue. Assuming this proportion holds on average for the rest of the Class 4 sector, the sector's assets can be estimated by multiplying the sector's revenue by 26%, which gives an estimate of the sector's assets of \$240m. The cost of capital is calculated by multiplying the sector's assets by the discount rate of 6% to get \$14m.

**Table 18: Quantifiable costs, Class 4**

Cost	per annum, \$ million
Venue costs	128
Society costs	16
Depreciation	64
Repairs/maintenance	26
Cost of capital	14
Problem Gambling Levy	12
Gambling fees	19
Total costs	280

## Casinos

As previously noted, New Zealand has six casinos. Four are owned by SkyCity (SkyCity Auckland, SkyCity Hamilton, SkyCity Queenstown and SkyCity Wharf), one is owned by Skyline (Christchurch Casino) and the other (Dunedin Casino) is part-owned by Christchurch Casino. SkyCity and Skyline

<sup>96</sup> Cheer & True (2020).

<sup>97</sup> The 2019 Problem Gambling Levy cost to Class 4 includes a \$5m credit transferred from the previous 3-year period.

are listed companies and have annual reports available. Each of these companies have other business interests that are not relevant for this analysis.

Total costs for the casino sector are the sum of the gambling-related costs of each of the six casinos. In the case of SkyCity Auckland and SkyCity's other New Zealand operations, while the annual report data segments revenue into gambling and non-gambling related revenues, expenses are not segmented. To count all SkyCity expenditure in our estimate of the production-side costs for gambling would overstate the costs, as total expenditure includes costs related to non-gambling activities such as hotel and restaurant services.

Gambling revenue makes up 67% of SkyCity Auckland's revenue and 85% of Other NZ Operations' revenue. This revenue share has been used to approximate the share of expenses and assets attributable to gambling-related activities (e.g., SkyCity Auckland's gambling expenses and assets are approximated by multiplying SkyCity Auckland's total expenses and segmented assets by 0.67).

In the case of Christchurch and Dunedin Casino, we are unable to reliably estimate the portion of costs attributable to gambling rather than non-gambling activities. Given both operations are relatively small in scale (Christchurch casino's 2019 revenue was \$60m and expenses \$49, while Dunedin casino's revenue was \$17m and expenses \$14m), the effect of including all expenditure as gambling-related is not significant. The result is that costs for these two casinos are somewhat overstated, resulting in a lower total net benefit for Casinos.

The cost of capital has been calculated on total casino sector assets of \$1,354m, equating to a total cost of capital of \$82m. This estimate is likely to be overstated (i.e., conservative). Given that SkyCity's operations such as the hotel and SkyTower likely represent a significant share of total assets, the estimated share of total assets assumed to be gambling related will be overstated, resulting again in a conservative estimate of total net benefits for Casinos.

**Table 19: Quantifiable costs, Casinos**

Cost	per annum, \$ million
Cost of goods sold	320
Cost of capital	82
Problem Gambling Levy	3
Gambling fees	5
<b>Total costs</b>	<b>410</b>

### Total gambling sector

Total production-side costs, including operating costs, cost of capital and Problem Gambling Levy across each of the four gambling types are summarised in Table 20 below.

**Table 20: Production-side costs, per annum, \$ million**

	Lotto	TAB	Class 4	Casinos	Total
Total operating costs (gambling related)	143	140	235	320	838
Cost of capital	7	8	14	82	111
Problem Gambling Levy	2	2	12	3	19
Gambling fees	-	-	19	5	24
<b>Costs</b>	<b>152</b>	<b>149</b>	<b>280</b>	<b>410</b>	<b>992</b>

As one would expect, the relative size of these costs is similar to the revenues for each gambling type (e.g., Class 4 at the higher end, TAB at the lower).

## Quantifying the net benefits to producers

Having established gross costs and benefits, the net benefit on the production-side can be calculated as in Table 21 below.

**Table 21: Production-side net benefits, per annum, \$ million**

	Lotto	TAB	Class 4	Casinos	Total
Gross benefits	397	275	619	515	1,806
Costs	152	149	280	410	992
Producer surplus	244	126	339	105	814

*Note: revenue has been rounded down to \$1,800m p.a. in NCBA tables to avoid discrepancies when rounding the total figures to the nearest \$10m.*

As Table 21 indicates, the total producer surplus generated from gambling is estimated at around \$810m p.a. As the highest revenue earner of the four gambling types, and with costs roughly proportionate to revenues for most classes, Class 4 generates the highest portion of this surplus.<sup>98</sup>

Our overall estimates of the gross benefits, costs and net benefits within the NCBA framework are presented below.

**Table 22: NCBA estimates – production-side**

National Wellbeing Cost-Benefit Analysis of Gambling in New Zealand					
Quantifiable in monetary terms:					
Gross benefits	p.a., \$m	Quantifiable costs	p.a., \$m	Quantifiable net benefits	p.a., \$m
<b>Production-side</b>					
Revenue (excl. duties):	1,800	Costs to gambling operators	990	Producer surplus:	810

Table 22 above presents the results of the analysis in this section:

- a gross production-side benefit in the form of revenue (excl. duties) of around \$1,800m p.a.;
- which comes at a cost of around \$990m p.a.; resulting in
- a net quantifiable benefit production-side benefit (producer surplus) worth around \$810m, p.a.

## Distribution of the production-side net benefits

This section looks at how the net production-side benefits of gambling of around \$810m p.a. are distributed for each of the four gambling types.

As noted above, Lotto, Class 4 and the TAB are not-for-profit. This means that the net benefits generated by these gambling types are distributed to community groups or back into the racing and

<sup>98</sup> In regard to the producer surplus generated by the TAB, it could be argued that in the absence of gambling, there would be little demand for horse racing. If mutual specificity exists between the TAB and the horse racing industry, then the producer surplus generated from race betting could be considered a cost of doing business for the TAB rather than a surplus (though not for sports betting as sports are not so reliant on betting). In this analysis we assume that the horse racing industry would still exist without the TAB, and therefore treat the surplus in the same way as other gambling types. This may overstate the producer surplus from the TAB.

sports sectors. In the case of the casinos, as commercial entities, the production-side net benefits are either reinvested in the businesses or distributed to the shareholders.

It should be noted that the benefits to the different recipients (the community groups, sports group, shareholders etc) noted below are not, from society's overall perspective, additional to the estimates of the producer surplus (around \$810m p.a.) provided above: rather the benefits discussed below reflect the way in which the producer surplus is distributed to different members of society.

The dollar value of the distributions by each gambling type is not identical to the net benefits (producer surplus) calculated in the previous section. This is because:

- the net benefits (producer surplus) estimate incorporates an allowance for the cost of capital, while the distribution values do not;
- net proceeds are not always distributed in the year they are generated; and
- not all net benefits are 'distributed' – in the case of Class 4, for example, the net benefits to clubs are used for authorised purposes for the benefit of the members of the club.

## **Lotto**

Lotto's net proceeds are transferred to a separate agency, the New Zealand Lottery Grants Board, for distribution.

Each year, New Zealand Lottery Grants Board allocates a certain percentage of distributions to the following statutory bodies (as per section 279 of the Gambling Act 2003):

- Creative New Zealand;
- New Zealand Film Commission;
- Nga-Taonga Sound & Vision; and
- Sport New Zealand.

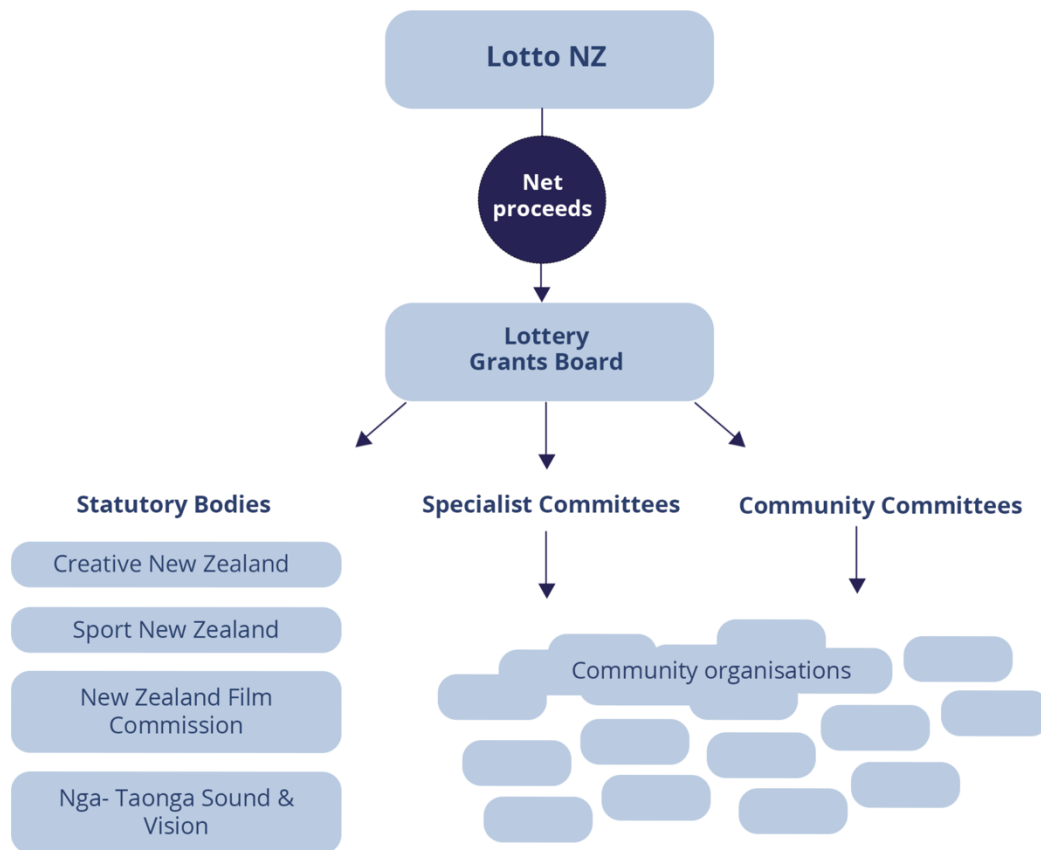
The remainder of funds are distributed by 22 specialist and community committees of the Lottery Grants Board.

The Lottery specialist committees consider requests for funds to assist with community facilities, projects with environmental or heritage benefits, health research, community sector research, marae heritage and facilities and outdoor safety. A Minister's Discretionary Fund considers initiatives that fall outside the responsibility of other committees and have demonstrable community benefit.

One national committee with a nationwide focus and ten regional committees consider applications for community initiatives. Each committee has differing priorities that take into account its region's characteristics.

In 2019, Lotto's total distributions were \$261m. The distribution system for Lotto funds is presented in Figure 14 below.

**Figure 14: Lotto distribution system**



The allocation of the distributions by the Lotteries Grants Board in 2019 is presented in Figure 15 below.

**Figure 15: Lotteries Grant Board distributions, 2019**



Alongside the distributions to the statutory bodies, in 2019 the NZ Lotteries Grants Board made grants to around 3,000 community groups.

**TAB**

Net proceeds from TAB racing betting are distributed to the racing industry. In 2019, the distributions were \$142m.

Proceeds from sports betting are mostly distributed to national sporting bodies depending on the betting turnover and betting margin earned by each sport.

The 2019 value of distributions by the TAB are presented in Figure 16 below.

Figure 16: TAB distributions, 2019



#### Class 4

100% of net proceeds from Class 4 is either:

- distributed by the 33 traditional (non-club) gaming societies in grants to the community;
- applied to authorised purposes by the 189 clubs; or
- in the case of Class 4 in the TAB, applied to the racing industry or distributed to amateur sporting bodies.

We consider the distribution systems of these two types of Class 4 societies below.

#### Traditional (non-club) gaming societies

The 33 traditional (non-club) gaming societies own around 80% of the gaming machines in licensed venues. These societies also generate most of the gaming-machine profits and grants returned to the community.

Community grants by the traditional (non-club) gaming societies are distributed by each society, rather than through a centralised or government-controlled distribution mechanism. Accordingly, each society is tasked with:

- receiving and deciding applications for funding, involving:
  - forming a view on the relative merits of different community causes;
  - deciding what is non-commercial;
  - determining whether funding will lead to additional activity i.e., whether an applicant already has sufficient funds; and
  - whether the local community will benefit; and
- detecting fraud or other malpractice among recipients.

The Class 4 system allocates large amounts of funds in a granular way. In 2019, the non-club Class 4 societies distributed a total of \$294m in grant funding to 9,688 organisations.<sup>99</sup> 26,300 individual grants were approved, averaging \$11,178 per grant. More than half (54.1%) of grants were less than \$5,000.

The value of the distributions by the Class 4 non-club societies by main category of recipient is provided in Figure 17 below.

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<sup>99</sup> KPMG (2020).

**Figure 17: Class 4 grant recipients, 2019**



The highest proportion of grants went to sports organisations. KPMG<sup>100</sup> reports grants to 111 different sporting codes. Rugby received the largest amount of sports grants, with \$25.6m in total provided to 441 different rugby organisations. Appendix 5 provides further detail on the largest grant recipients by dollar value and the number of grants.

### Clubs

Club societies own and host gaming machines. There are currently 189 club societies operating Class 4 gaming machines, including: 104 chartered clubs (such as cosmopolitan and working men's clubs); 57 RSAs; and 28 sports clubs.

Net proceeds are mainly applied by the club for the benefit of club members.<sup>101</sup> Examples may include:

- provision, maintenance and development of club buildings and grounds;
- staff wages (excluding bar staff); and
- funding special events such as holiday celebrations and RSA activities like ANZAC day.

In 2019, a total of \$39m of net proceeds was applied to authorised purposes by clubs for the benefit of their members.

### Class 4 in TAB venues

In the case of Class 4 gaming machines in TAB venues, 80% of the net proceeds are applied to authorised purposes in the racing industry and the remaining 20% are distributed to community sporting organisations. In 2019, \$17m was applied to the racing industry, and \$4m distributed to sporting organisations.

### Casinos

As commercial gambling operators, profits from gaming machines in casinos are largely reinvested into the business or distributed to shareholders. A portion of net proceeds of each of the six casinos is also distributed to an independent charitable trust at a rate defined by each casino licence agreement.<sup>102</sup> Some casinos undertake further voluntary community distributions and support local

<sup>100</sup> Ibid.

<sup>101</sup> With some clubs also making distributions to community organisations (such as amateur and youth sporting organisations).

<sup>102</sup> For example, SkyCity Auckland is required to distribute 0.7% of revenue to its independent charitable trust, while Christchurch Casino is required to distribute 2.5% of net proceeds to the community. Further information available at: [http://www.gamblingcommission.govt.nz/gcwebsite.nsf/wpg\\_URL/Casino-Licence-Conditions-Index!OpenDocument](http://www.gamblingcommission.govt.nz/gcwebsite.nsf/wpg_URL/Casino-Licence-Conditions-Index!OpenDocument)

organisations.<sup>103</sup> The Gambling Act requires casino venue licenses not be renewed unless, among other things, the Gambling Commission is satisfied that “renewing the licence will result in a net benefit to the local and regional communities... and to New Zealand generally”.<sup>104</sup>

## 4.4 Gambling duties

### Introduction

Alongside the production-side and consumption-side costs and benefits, the existence of gambling in New Zealand generates benefits that accrue to the Government (and thus New Zealanders as a whole) through gambling duty revenue.

The various gambling duties (Lottery duty, betting duty, gaming machine duty and casino duty) are not targeted to specific government activities, instead these generate general government revenue. They could be compared to the taxes on alcohol or cigarettes – sometimes referred to as “sin taxes”.

Gambling duties are additional revenue to the Government from gambling – i.e., unlike GST, the revenue arising from the duties would not be collected if gambling was not permitted.

Gambling fees and the Problem Gambling Levy, though collected by the Government, do not represent additional surplus. Rather, these are charges to recover regulation, administration and harm-related costs of gambling, incurred directly by gambling operators. Gambling fees and the Problem Gambling Levy are therefore part of the costs incurred by operators and are included in the previous subsection (production-side).

### Quantifying the gross benefits

Gambling duties are a gross benefit of gambling that accrues to the Government. The value of this gross benefit is simply the sum of total duty payments for each gambling type.

Rates and charging mechanisms vary between duty types:

- lottery duty is charged at 5.5% on the nominal value of all tickets;
- gaming machine duty is charged as 20% of revenue;
- totalisator duty is charged on revenue at 1.3%;<sup>105</sup> and
- casino duty is payable by casino operators on revenue and charged at 4%.

Table 23 below presents the approximate per annum value of gambling duties.<sup>106</sup>

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<sup>103</sup> Baines and Butcher (2017), written in the context of Christchurch Casino’s recent licence renewal provides further information on examples of wider initiatives undertaken by casinos. This report and further information relating to the renewal can be found at: [http://www.gamblingcommission.govt.nz/GCwebsite.nsf/wpg\\_URL/Casino-Licence-Conditions-Renewal-of-Licence-for-the-Christchurch-Casino!OpenDocument](http://www.gamblingcommission.govt.nz/GCwebsite.nsf/wpg_URL/Casino-Licence-Conditions-Renewal-of-Licence-for-the-Christchurch-Casino!OpenDocument)

<sup>104</sup> The Gambling Act, 2003, Section 134.

<sup>105</sup> According to <https://www.ird.govt.nz/duties/totalisator>, from 1 July 2021 the totalisator duty will be 0% (but the Problem Gambling Levy is still payable). For the purpose of this analysis, we assume that Totalisator duty is received by the Government at the 2019 rate.

<sup>106</sup> As with other calculations in this analysis, these values are based on the 2019 data.



**Table 23: Total gambling duty revenue**

Operator	per annum, \$ million
Lotto	65
TAB	13
Class 4	185
Casinos	20
Total	283

*Note: Unlike the other three gambling types which operate under a not-for-profit structure, Casinos also pay company tax. Company tax is incorporated within the cost-of-capital estimate.*

As the table indicates, gambling duties generate significant government revenue totalling around \$280m, with the biggest portion by a substantial margin paid by Class 4. This surplus represents \$280m of funds available for the Government to contribute to the wellbeing of New Zealand that would not be collected in the absence of gambling.

## 4.5 Overall estimates of the costs and benefits quantifiable in monetary terms

The overall effects of gambling on national wellbeing that can be estimated in monetary terms is the sum of the consumer, producer and gambling duty net benefits. As Subsection 4.2 details, this estimate includes the financial costs incurred by moderate-risk and problem gamblers while assuming no benefits are received by these two groups.

**Table 24: NCBA assesment – quantifiable costs and benefits**

National Wellbeing Cost-Benefit Analysis of Gambling in New Zealand					
Quantifiable in monetary terms:					
Gross benefits	p.a., \$m	Quantifiable costs	p.a., \$m	Quantifiable net benefits	p.a., \$m
<b>Consumption-side</b>					
Enjoyment benefit to gamblers:	2,740 to 3,160	Quantifiable cost to gamblers:	2,090	Consumer surplus:	650 to 1,070
<b>Production-side</b>					
Revenue (excl. duties):	1,800	Costs to gambling operators	990	Producer surplus:	810
<b>Gambling duties</b>					
Gambling duty revenue:	280	Not applicable	-	Gambling duty surplus:	280
<b>Total</b>					
Total quantifiable benefits:	4,820 to 5,240	Total quantifiable costs:	3,080	Total quantifiable net benefits:	1,740 to 2,160

It should also be reiterated that the above table does not consider the non-monetary costs and benefits of gambling. These are considered in the following section of this report.

## 5 Costs and benefits not quantifiable in monetary terms

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### 5.1 Introduction

As noted in the Framework section (Section 3), when undertaking a NCBA, Treasury encourages:

- monetisation of key effects that have a good evidence base;
- consideration of all effects, whether monetarised or not; and
- leaving effects as unmonetarised or providing sensitivity analysis and ranges when the evidence base is limited and the connection is tenuous and uncertain.<sup>107</sup>

This section of the report discusses the costs and benefits of gambling that are not able to be quantified reliably in monetary terms. The costs include different harm-related costs that can arise from gambling, while the benefits relate to increased funding of sports and arts and the wellbeing adjustment costs avoided.

As is discussed below, for these costs and benefits of gambling, the information base is inadequate at this stage to permit reliable estimates of the wellbeing effects in monetary terms.

### 5.2 Costs not quantifiable in monetary terms

The costs not quantifiable in monetary terms that arise from gambling are the different forms of gambling-related harms. These costs can be incurred by gamblers, gamblers' affected others and others in society.

#### Gambling harm-related costs: introduction

Understanding and measuring gambling harm has been subject to substantial research and debate. Developing a framework for assessing the costs and benefits of gambling was, for example, the goal of a conference in Whistler, Canada in 2000. The conference was called the First International Symposium on the Economic and Social Impact of Gambling, gathering gambling academics from a range of disciplines, among them:

- Wynne – responsible for developing the PGSI;
- Korn and Shaffer – developers of the public health perspective of gambling harm<sup>108</sup>; and
- a range of other academics from different disciplinary backgrounds.

A review of papers from the conference<sup>109</sup> indicate a consensus that gambling can lead to harms/social costs, but a surprising lack of consensus over a) the magnitude of these costs and b) how to measure them. As discussion in this section indicates, twenty years on from the Whistler Symposium and the

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<sup>107</sup> Treasury (2015).

<sup>108</sup> See Korn et al. (2003).

<sup>109</sup> Eadington (2003); Korn & Gibbons (2003); Wynne & Shaffer (2003); Collins & Lapsley (2003); Walker (2003).

same applies. Among other things, the inability to isolate gambling-specific costs; low sample sizes; and lack of data contribute to an inability to reliably quantify these costs.

This section continues by qualitatively analysing:

- the nature of gambling harm-related costs;
- who is bearing the harm-related costs; and
- attempts to quantify the harm-related costs.

## **The nature of gambling harm-related costs**

Gambling harm is defined in the Gambling Act as:

*harm or distress of any kind arising from, or caused or exacerbated by, a person's gambling; and includes personal, social or economic harm suffered:*

- *by the person; or*
- *by the person's spouse, civil union partner, de facto partner, family, whanau, or wider community; or*
- *in the workplace; or*
- *by society at large<sup>110</sup>*

The table below presents a list of the costs/harms of gambling identified in recent New Zealand and Australian-based studies.

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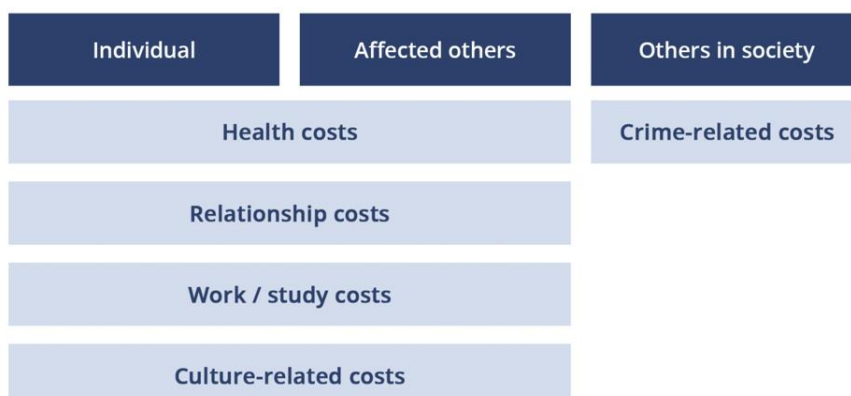
<sup>110</sup> Gambling Act, 2003, Section 4.

**Table 25: Gambling related harms / costs**

Study	Costs / harms identified	
<p>BERL (2020)</p> <p><i>New Zealand</i></p>	<p><b>Social costs:</b></p> <ul style="list-style-type: none"> <li>- Economically regressive</li> <li>- Community disadvantage magnified</li> <li>- Displacement of non-pernicious expenditure</li> <li>- Crime</li> <li>- Health, quality of life, and other harms to gamblers and families</li> <li>- Relationship problems</li> <li>- Reduced productivity / loss of employment</li> <li>- Financial problems / reduced material standard of living</li> <li>- Lack of time for non-pernicious activities e.g., volunteering / cultural activities</li> <li>- Cultural harm (less participation)</li> </ul>	
<p>Browne et al. (2017)</p> <p><i>New Zealand</i></p> <p>Included a taxonomy of 84 harms</p>	<p><b>Potential harms to gambler and to affected others:</b></p> <ul style="list-style-type: none"> <li>- Financial harm</li> <li>- Relationship disruption / conflict / breakdown</li> <li>- Emotional or psychological distress</li> <li>- Decrements to health</li> <li>- Cultural harm</li> <li>- Reduced performance at work or study</li> <li>- Criminal activity</li> <li>- Lifecourse and intergenerational harms</li> </ul>	<p><b>Categorised as:</b></p> <ul style="list-style-type: none"> <li>- General</li> <li>- Crisis</li> <li>- Legacy</li> </ul>
<p>Lin et al. (2008)</p> <p><i>New Zealand</i></p>	<p><b>Impact on individual gambler:</b></p> <ul style="list-style-type: none"> <li>- Physical health</li> <li>- Mental health</li> <li>- Feelings about self</li> <li>- Relationships</li> <li>- Work / study performance</li> <li>- Material standard of living</li> <li>- Illegal activities</li> </ul> <p><b>Impact on close family members:</b></p> <ul style="list-style-type: none"> <li>- Physical health</li> <li>- Mental health</li> <li>- Housing situation</li> <li>- Material standard of living</li> <li>- Relationships</li> <li>- Care giving of children</li> <li>- Feelings about self</li> </ul>	<p><b>Wider family members, friends and work-related associates:</b></p> <ul style="list-style-type: none"> <li>- did not incur significant impacts from others with gambling addiction.</li> </ul>
<p>Productivity Commission (1999, 2010)</p> <p><i>Australia</i></p>	<p><b>Effects of problem gambling:</b></p> <ul style="list-style-type: none"> <li>- Personal</li> <li>- Financial</li> <li>- Legal</li> <li>- Interpersonal</li> <li>- Community services</li> <li>- Work and study</li> </ul>	

The non-quantifiable harm-related costs that can arise from gambling listed above can be categorised in the framework presented in Figure 18 below.

**Figure 18: Non-quantifiable costs that can arise from gambling**



Financial costs/harms appear in the literature above as a harm arising from gambling. It should be noted that the financial costs of gambling – the amount spent or lost on gambling - have been included in the quantitative estimates of the costs and net benefits in Subsection 4.2 of this NCBA.<sup>111</sup> The same applies to:

- displacement of non-pernicious expenditure; and
- lack of time for non-pernicious activities e.g., volunteering/cultural activities.

These costs (known in economics as opportunity costs) are part of the costs identified in Subsection 4.2 – consumption-side costs and benefits. Opportunity costs are built into the demand curve of individuals when they choose to gamble – they are making a trade-off by foregoing other ways of spending their time and money.<sup>112</sup>

This section discusses each of the other costs/harms in turn.

### Health costs

At the high-risk end, gambling can be associated with adverse effects to both physical and mental health.<sup>113</sup> Health costs can be incurred by both the gambler and affected others. Mental health effects may range from stress to anxiety and depression, while other possible health effects can include:

- increased blood pressure, loss of sleep and migraines;
- increased alcohol, tobacco or drug consumption; and at the highest end
- acts of self-harm or attempted suicide.

Identifying and analysing gambling-related harms, particularly those that are health related, is complicated by two important issues: comorbidities and causation.

<sup>111</sup> It is also worth noting that rather than being a harm itself, financial loss can be a driver of gambling harms. Discussion of this point is presented in Sapere (2018, p. 26).

<sup>112</sup> See: Delfabbro, King, & Georgiou (2020a), Opportunity cost and gambling: distinguishing between competing activities and harm.

<sup>113</sup> Including emotional or psychological distress.

## Comorbidities

For a lot of people with gambling problems, gambling is not their only problem. 'Comorbidity' refers to the presence of more than one disorder in the same person.

It is widely agreed in the gambling literature that problem gamblers have high rates of other comorbid disorders. The Royal Australasian and New Zealand School of Psychiatrists states that approximately 90% of people considered problem-gamblers have at least one other mental-health diagnosis<sup>114</sup>, while Kessler et al. (2008) found that 96% of lifetime problem-gamblers in the study also met lifetime criteria for one or more other disorders.

Lorains et al. (2011) found that among moderate-risk and problem gamblers in Australia, the most common comorbid disorders were:

- nicotine dependence (60.1%);
- substance use disorder (57.5%);
- any type of mood disorder (37.9%); and
- any type of anxiety disorder (37.4%).

Other studies<sup>115</sup> have found the most prevalent comorbid condition associated with problem gambling to be depression, with a prevalence among problem gamblers of around 60%.

Problem gamblers with comorbid disorders experience multiple simultaneous effects on health and wellbeing. This makes it difficult to isolate and understand what portion of harm is attributable to gambling, as opposed to other comorbid disorders. Comorbidities are a central issue in the discussion to follow on attempts to quantify harm-related costs of gambling.

## Causation

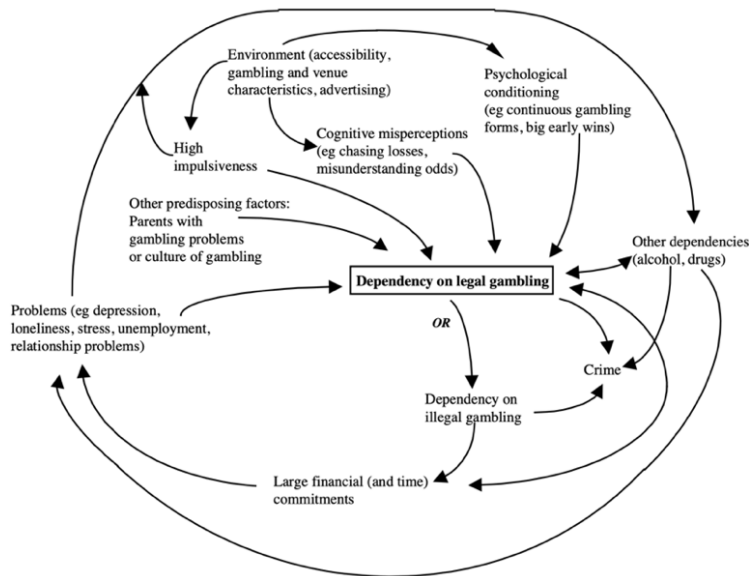
Following on from a discussion of comorbidities is one of direction of causation. Did the gambling cause the problem or did the problem cause the gambling? Sometimes known as 'the chicken or the egg', issues surrounding the direction of causation are central to a quantification of the costs of gambling. The complicated nature of causation is captured in Figure 19 below.

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<sup>114</sup> <https://www.ranzcp.org/news-policy/policy-and-advocacy/position-statements/problem-gambling>

<sup>115</sup> Battersby and Tolchard (1996), MacCallum et al. (2004), Oaks (2002).

**Figure 19: Causal pathways and problem gambling**



Source: Productivity Commission of Australia, (2010).

In a 2011 Australian study, Holdsworth et al. (2011) undertook qualitative research to help understand the relationship between problem gambling and other disorders by interviewing those who treat problem gamblers (i.e., mental health therapists, problem gambling counsellors and financial counsellors). The complexity of determining the temporal sequencing of disorders was clearly noted by interview participants. For example, half of the substance therapists said that drug and/or alcohol disorder generally comes first, although half of these therapists acknowledged there are ‘no strict rules’ and that ‘the opposite can also be true’— that the gambling problems can come before the substance problems.

Holdsworth, Haw and Hing’s study concurs with Shaffer and Korn, who assert that the complex relationship between comorbid disorders include the possibilities that:

- one disorder causes the other;
- both disorders share the same cause;
- both disorders are components of a more complex set of symptoms;
- both disorders are independent of each other; or
- one disorder protects against the other.<sup>116</sup>

Shaffer and Korn’s final point is picked up by Browne et al, who discuss the possibility of gambling as a coping mechanism - a symptom or reducer of harm rather than a cause. Browne et al. state:

*Older New Zealanders may gamble more often due to a desire for companionship in a safe public space – a potentially influential coping mechanism for loneliness when the spouse is deceased. When considered as a coping mechanism, in the absence of gambling, other means of escapism may be adopted or alternatively used in conjunction with gambling (i.e. leading to comorbidities arising from a third variable, as described above).<sup>117</sup>*

<sup>116</sup> Shaffer & Korn (2002).

<sup>117</sup> Browne et al. (2017, p. 44).

As this discussion illustrates, comorbidities are common amongst those with gambling problems and are a complex and non-uniform phenomenon.

### **Relationship costs**

The second type of harm-related costs is relationship costs. The potential impact gambling has on relationships varies from person-to-person: whereby some problem-gamblers may keep their issue internalised, while for others it spills over to those around them.

High-risk gamblers may incur relationship costs including:

- neglecting relationship or family responsibilities;
- social isolation; or at the extreme end
- physical or emotional violence in relationships; and
- separation or end of relationships.

As with other gambling related harms, relationship costs can be felt by both gamblers and affected others. These may be incurred evenly between the two parties, or solely on one side. In some cases, the individual gambler may not be conscious of the relationship costs they create for affected others.

The issue of causation arises when discussing relationship-related harms/costs. Relationship issues can lead to gambling or vice versa, or even a third issue like work stress or anxiety could lead to gambling which then leads to relationship issues. As with health issues, relationship-related costs associated with gambling can be complex and manifest in different directions and forms.

### **Work/study costs**

Costs of gambling at the high-risk level can spill over into the workplace or study environment. These can include:

- use of work or study time to gamble;
- conflict with colleagues; and/or
- reduced performance at work or study.

### **Culture-related costs**

Culture-related harm is a recent area of research both in New Zealand and internationally.<sup>118</sup> Manifesting in different ways depending on the culture of the individual, culture-related harm can include:

- culturally based shame in relation to cultural roles and expectations;
- reduced contribution to community and cultural practices; and
- damaged or lost connection to community and culture.

Alongside the individual level, culture-related harm can be incurred by affected others including family and wider community.

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<sup>118</sup> See for example Kolandai-Matchett (2017) and Wardle (2019).



## Crime-related costs

The link between crime and gambling is often drawn on three different bases:

- organised crime may control gambling because of its apparent profitability, use legal gambling to launder money or act as loan sharks for people desperate for gambling funds;
- gambling venues and their precincts may become hubs for other criminal acts, such as theft and assault; and
- problem gamblers may commit crimes to finance their gambling.

While each is certainly possible, there is very little conclusive evidence about the nature and magnitude of the crime-gambling connection in New Zealand. In 2009, AUT released a 'formative investigation of the links between gambling and crime'. The study interviewed 33 gamblers and 7 affected others, where 27 of the gamblers were problem gamblers.

The most commonly reported contributing factors to criminal behaviour for participants included poverty/financial stress, mental or emotional health problems, gambling/problem gambling, relationship problems and family problems which appeared to be in agreement with the comorbid behaviours reported by participants.

The AUT study concluded that:

- the study was formative with a small self-selected/convenience sample of participants and the findings should therefore be treated with caution;
- regardless, it indicates that gamblers and significant others believe that a relationship exists between gambling and crime though the causal nature of these links is complex and has yet to be clearly established; and
- in some cases, criminal behaviours are committed in order to gamble/pay gambling-related debts (i.e., gambling causes the crime) whilst in other cases, participants reported that their crimes caused their gambling or that they gambled instead of committing a crime.

## Who is bearing these costs?

Despite a number of uncertainties including comorbidities; causation; and lack of data, the analysis above indicates that gambling can create different types of harm-related costs. These include health costs; relationship costs; work/study costs; culture-related costs; and crime-related costs, which, for some individuals, can be very high. The question follows: who are these individuals and how many of them are there?

By definition, problem gamblers, of which there are estimated to be 8,000 in New Zealand, are incurring harm-related costs. The nature and magnitude of these costs will depend on the individual.

A portion of the estimated 69,000 moderate-risk gamblers are incurring harm-related costs, however likely to a lesser extent than problem gamblers.

The number of possible affected others per moderate-risk or problem gambler will vary from case to case. Recent research by Goodwin et al estimated that an average problem gambler affects 6 others, while an average moderate-risk gambler affects 3 others.<sup>119</sup> If we apply the Goodwin et al (2017) findings to New Zealand, it could be tentatively estimated that approximately:

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<sup>119</sup> Goodwin et al. (2017).

- 42,000 people may be affected by problem gamblers; and
- somewhere between 100,000 and 240,000 people are affected by moderate-risk gamblers, likely to a lesser extent.<sup>120</sup>

Affected-others of gamblers generally include close family members (i.e., partners, children, parents, siblings). As discussed by Lin et al. (2008, p. 11) effects on wider family members, friends and work-related associates are not likely to be significant.

To the extent that crime-related costs occur as a result of moderate-risk and problem gamblers, some others in society can also bear harm-related costs.

### Low-risk gamblers

A New Zealand-based study Browne et al. (discussed further in the following subsection, ‘Attempts to quantify harm-related costs’), concluded that in aggregate, low-risk gamblers are harmed more than problem gamblers. This conclusion was the result of summing up small harms to a number of people and comparing these with big harms to a few people – an approach akin to aggregating minor itches and sneezes displayed by 1000s with 10 cases of the flu.<sup>121</sup>

Table 26 below presents the top 15 harms reported by low-risk gamblers in the Brown et al study.

**Table 26: Top 15 harms reported by low-risk gamblers, CQU/AUT**

Dimension	Harm	Severity of harm rating	Prevalence in low-risk gamblers (%)
Financial	Reduction of available spending money	-0.7	45.1
Financial	Less spending on recreational expenses	0.2	24.6
Financial	Reduction of my savings	0.2	23.8
Emotional/Psychological	Had regrets that made me feel sorry about my gambling	0.3	14.8
Emotional/Psychological	Felt ashamed of my gambling	0.4	11.5
Relationships	Spent less time with people I care about	0.6	10.7
Financial	Increased credit card debt	1.5	9.0
Health	Reduced physical activity due to my gambling	1.1	7.4
Relationships	Spent less time attending social events (non-gambling related)	1.1	7.4
Emotional/Psychological	Feelings of hopelessness about gambling	0.8	6.6
Health	Ate too much	2.6	5.7
Health	Increased my consumption of alcohol	1.6	5.7
Health	Loss of sleep due to spending time gambling	1.0	5.7
Emotional/Psychological	Felt angry about not controlling my gambling	0.5	5.7
Financial	Sold personal items	1.3	4.9

*Note: the severity index used ranges from -0.7 to 4.1 where -0.7 is low severity and 4.1 is high*

As is evident from the table above, not only are a number of the harms the study uncovered for low-risk gamblers of low severity (to the extent that it is questionable whether they can be considered material costs), but a number represent opportunity costs of decision-making rather than additional harm (see Subsection 4.2). These opportunity costs are already incorporated in the consumption-side

<sup>120</sup> Given the behavioural characteristics of this group, it is unreasonable to assume that all moderate-risk gamblers are causing harm to affected others. There may be a group that are causing harm-related costs to affected others without incurring it themselves, though there will also be a group who are neither causing nor incurring harm. We therefore estimate the above range, whereby the lower end is based on half of the moderate-risk gamblers causing harm to 3 affected others, while the upper end assumes all moderate-risk gamblers cause harm to 3 affected others.

<sup>121</sup> Delfabbro & King (2019).

analysis in Section 4. For these reasons, we do not consider it appropriate to assign harm-related costs to low-risk gamblers (nor affected others of low-risk gamblers).

## Attempts to quantify harm-related costs

An accurate picture of the scale and extent of gambling-related harm depends on a careful conceptual and measurement framework, alongside reliable data. To date, studies in this area, particularly in New Zealand, have been fraught with conceptual difficulties and are supported by only limited empirical evidence. This section reviews recent and noteworthy studies relating to quantifying harm-related costs. These include BERL (2020), Browne et al. (2017) and Productivity Commission of Australia (1999, 2010).

### **BERL (2020) – Assessment of the effects of Class 4 gambling on Wellbeing in New Zealand**

BERL (2020) is the most recent New Zealand-based study involving an assessment of gambling-related social costs. The report is the second in a two-stage project commissioned by the DIA, examining the costs and benefits of gambling in New Zealand. The first stage report (BERL (2019)) involved developing an assessment framework for the costs and benefits of gambling in New Zealand<sup>122</sup>, while the BERL (2020) report used the framework to assess the costs and benefits of the Class 4 sector.<sup>123</sup>

The BERL (2020) report highlights possible costs and benefits from Class 4 gambling based on a literature scan, then presents BERL's view of the magnitude of these effects. BERL chooses not to attempt to quantify the costs and benefits, rather "suggests their likely magnitude and, where possible, the sources of evidence on the magnitude". The magnitude of effects is expressed in terms of the following scale: Negligible / Small / Moderate / Significant / Large / Very large (or Unclear). BERL (2020, p. 4) notes:

*"There was often little evidence from other research to enable a clear assessment of the magnitude of the costs and benefits. Likewise, there was often little evidence to inform judgements about the scope to influence the magnitude of the costs and benefits. Accordingly, much of what is in the table reflects BERL's subjective assessments."*

The costs section of BERL's summary results are presented in Table 27 below.

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<sup>122</sup> Costs and benefits are assigned to four categories: social costs; system costs; economic benefits and community benefits.

<sup>123</sup> Rather than gambling in New Zealand as a whole, resulting in substantial methodological issues surrounding the counterfactual.

**Table 27: BERL (2020) Summary table of the social costs and system costs**

<b>Social costs</b>	<b>Type</b>	<b>Magnitude</b>	<b>Potential to decrease</b>
	Economically regressive – wealth transfers from the many to the few	Unclear	Unclear
	Magnification of community disadvantage – redistribution from deprived to less deprived communities	Significant (See section 3)	Significant
	Displacement of non-pernicious spending	Varies (Very large for heavy gamblers)	Moderate
	Crime – private costs only	Large (Unknown)	Moderate
	Poor health/quality of life	Varies (Very large for problem gamblers)	Moderate
	Relationship problems	Varies (Large for problem gamblers)	Moderate
	Loss of employment/productivity	Unclear	Unclear
	Lack of time for non-pernicious activities	Varies (Large for heavy gamblers)	Moderate
	Cultural harm	Varies (Depends on ethnicity)	Moderate
<b>System costs</b>	<b>Type</b>	<b>Magnitude</b>	<b>Potential to decrease</b>
	Regulatory burden	Moderate? / Significant?	Moderate
	Police and justice	Significant	Moderate
	Public health/treatment costs	Moderate	Moderate

Some costs, for example, crime (assessed as large) and police and justice (assessed as significant) have been assigned high magnitudes based on entirely subjective evaluations. The executive summary (p. ii) states:

*The qualitative analysis also indicates that, despite a lack of research evidence, the crime-related costs of Class 4 gambling are thought to be large. Crime driven by the activity is probably relatively uncommon, but the costs of investigating and prosecuting gambling-related crimes are large. At the same time, we believe that there is only moderate potential to reduce these costs.*

In other instances, BERL (2020) assigns magnitudes to costs and benefits based on a weak and sometimes contradictory evidence base, as noted by NZIER (2020b) in its peer review of the BERL report. Other issues noted by NZIER include failing to identify and deal with double-counting, interactions and causal relationships<sup>124</sup> and instances where the analysis contradicts the conclusions drawn.<sup>125</sup>

The BERL report adds to the discourse on the nature of possible gambling related costs and benefits of gambling in New Zealand.<sup>126</sup> In regard to its assessment of magnitude of the costs and benefits, however, its approach is subjective, evidence-weak and includes methodological flaws. As a result, few, if any, conclusions can be drawn from this study.

<sup>124</sup> Such as comorbidities.

<sup>125</sup> NZIER (2020b, pp. 7, 11).

<sup>126</sup> Though as highlighted in Subsection 3.3 and 4.2, at times mistreats these.

## **Browne et al. (2017) – Measuring the Burden of Gambling Harm in New Zealand**

Browne et al. (2017) was commissioned by the Ministry of Health to estimate the total harms incurred by gamblers and affected others in New Zealand. The study surveyed 1,500 self-selected individuals, assessing the prevalence of 83 types of harm of ranging severity levels.

The study assessed the years of life lost to disability as a result of harms from gambling. This approach estimated that annually:

- low-risk gamblers lose around 1/5 of a year of healthy life due to their gambling
  - deeming low-risk gambling more detrimental to life quality than an untreated amputation of a leg;
- moderate-risk gamblers lose over 1/3 of a year of healthy life due to their gambling
  - deeming moderate-risk gambling more detrimental to life quality than amphetamine dependence;
- problem gamblers lose over 1/2 of a year of healthy life due to their gambling
  - deeming problem-gambling more detrimental to life quality than terminal cancer or a severe stroke, and nearly as detrimental to life quality as untreated AIDS; and
- nearly 500,000 affected others also all lose 1/5 of a year of healthy life due to someone else's gambling
  - deeming being an affected other more detrimental to life quality than severe heart failure.

As discussed above, Browne et al.'s approach of summing up harms also found more harm in aggregate to low-risk gamblers than problem gamblers.

A number of methodological issues contribute to the extreme scale of harm discovered in Browne et al. and the study has since been subject to much debate. Key issues that compromise the reliability of this quantification are discussed below.

- **The broad definition of harm:** Browne et al. aggregated 83 different types of harm, including mild harms such as 'reduction in savings' and 'ate too much'. Not only are a number of these harms opportunity costs rather than harms, the approach of 'adding up lots of little harms equals a lot of harm' is highly questionable.<sup>127</sup>
- **Treatment of comorbidities:** Despite the widely accepted prevalence of comorbid disorders in high-risk gamblers (see discussion above), the report makes no adjustment for comorbidities. It attributes 100% of harm felt by participants to gambling, stating that:

*The present study... makes not [sic] adjustment for comorbidities due to the difficulty of implementing such an adjustment for gambling-related harm... estimates will be somewhat inflated.*

- **Causation:** The study treats causation as running 100% from gambling to harm, despite evidence that this is not always the case (also discussed above).
- **Ignoring positive benefits:** The study makes no attempt to consider positive benefits that can co-occur with harms – overstating the bad whilst ignoring the good.

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<sup>127</sup> See Delfabbro & King, op cit.

- **Affected others:** The study finds significant harm to affected others by applying a uniform quality-of-life decrement to an assumed 486,000 affected others. More understanding of the population and scale of impact on affected others is necessary to reliably measure these costs.<sup>128</sup>

The New Zealand-based study followed a study of the same nature by Browne et al. in Victoria, Australia,<sup>129</sup> a report that is also subject to substantial debate. In a subsequent publication,<sup>130</sup> Browne et al. note a number of limitations to their methodology, including issues surrounding their broad definition of harm; treatment of comorbidities; and lack of assessment of positive benefits. Browne et al. states (p. 2):

*Limitations acknowledged in these reports were that they did not attempt to consider any positive benefits that may co-occur with gambling harms, especially less severe harms, or control for the possible confounding effect of comorbid conditions. The latter has the most potential to be problematic, given the high degree of co-morbidity of gambling problems with other mental health and substance use disorders.*

Accordingly, Browne et al. (2020) discusses the need for amendments to the previous approach of assessing harm. The article discusses the possibility of using a new methodology for isolating actual gambling-related harms and providing a more accurate understanding of their scale.

Browne et al's 2020 article provides a clear indication that the quantification in Browne et al. (2017 'Measuring the Burden of Gambling Harm in New Zealand') is inflated by problematic methodology. This methodology would require substantial improvements in order to be considered a reliable evidence base.

### **Productivity Commission of Australia (1999, 2010) – Australia's Gambling Industries**

The Productivity Commission of Australia's (1999) report was a pioneering study on the costs and benefits of gambling in Australia.<sup>131</sup> It was followed in 2010 by a second, largely similar study, but with more focus on policy implications and harm minimisation methodology. Much of the process in the 2010 study was taken from the first report, thus this is our main reference in this analysis.

As part of the 1999 study, the Commission undertook a large-scale nationwide survey with 11,000 participants. The surveys asked respondents about a range of impacts from their gambling, including in relation to the six forms of social cost in the study: personal; financial; legal; interpersonal; community services; and work & study. Survey responses were combined with problem-gambling counselling data to estimate prevalence-of-harm social costs.

Having estimated the prevalence of different costs, the Commission drew on a long list of sources to value these in monetary terms, providing sensitivity ranges to account for uncertainty and differences in severity. To account for the issue of causality, the Commission uses a blanket approach of discounting the number of people estimated to be affected by each cost by 20%.

For example, the following data was used to estimate the emotional cost of relationship breakdowns:

- the survey result for the number of relationship breakdowns attributed to gambling in the last 12 months (39,200);

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<sup>128</sup> Further information assessing Abbott et al. can be found at: <https://www.tdb.co.nz/wp-content/uploads/2019/12/Gambling-Review-Aug-19.pdf>.

<sup>129</sup> Browne et al. (2016).

<sup>130</sup> Browne et al. (2020).

<sup>131</sup> Reith (2004) noted that it is generally considered that the reports from the Australian Productivity Commission and from the National Gambling Impact Study Commission in the United States, each published in 1999, represented the most authoritative assessments to date of the impact of gambling and problem gambling. While some years on from 1999, the 1,000 plus page Productivity Commission report is still regarded in the sector as a highly authoritative study.

- less the number that led to divorce or separation (3,200);
- adjusted using the causality adjustment (80 per cent); and
- then doubled to take account of the other party involved.

This results in an estimate of 57,600 people adversely affected by a relationship breakdown (excluding those involved in divorce and separation).

To assess the monetary value of costs involving pain and suffering (i.e., emotional harm, violence and depression) the Commission made estimates based on victim compensation legislation for the victims of crime. The emotional costs relating to relationship breakdown were estimated at \$5,000 to \$15,000 (whereas the emotional costs of divorce/separation ranged between \$15,000 and \$30,000).

This generated a lower estimate of the total costs of relationship breakdown of \$288 million and a higher estimate of \$864 million.

A range of valuation processes across the range of social costs was undertaken. In aggregate, the study found the cost ranges presented in Table 28 below:

**Table 28: Productivity Commission of Australia (1999) cost estimates, \$m (AUD), p.a.**

<i>Impact</i>	<i>low (\$m)</i>	<i>high (\$m)</i>
Bankruptcy	1.3	1.3
Productivity loss	28	200
Job change	59	59
Police, court and jail	14	14
Distress of family and parents	756	2 933
Breakup, divorce and separation	417	1 120
Violence	2.8	8.3
Depression and suicide	502	1 230
Gambling counselling services	20	20

In total, these costs range from \$1,800m to \$5,600m, with the highest costs stemming from distress of family and parents; depression and suicide; and breakup, divorce and separation. It can be noted that the quantification of police, court and jail costs (\$14m) and violence (\$2.8 to 8.3m) are relative low – contrary to BERL (2020)'s assessment discussed above.

Comparing the cost range above with the report's estimated net benefits from consumption (\$4,400m to \$6,100m) yields a range for the overall net benefits of gambling from a net social cost of \$1,200m to a net benefit of \$4,300m. The Commission advises caution in interpreting this result, given the wide range from positive to negative and the large aggregation of analysis that lies within these figures.

While the magnitude of these figures is highly incomparable to the New Zealand case (given significant differences in population size, high-risk gambling prevalence and demographics), discussion of the process with which they were calculated illustrates the high level of uncertainty surrounding such a quantification.

Unlike the analysis of consumer surplus (which is based on a relatively simple orthodox economic framework), the social cost analysis undertaken in the Australian Productivity Commission study cannot be replicated in New Zealand without a significant improvement in data, alongside substantial resources. Furthermore, while estimates of this sort can be insightful, they are not without complication, ambiguity and numerous, possibly even arbitrary, assumptions.

### **Conclusion on quantifying harms**

This qualitative analysis of recent New Zealand-based studies and the Productivity Commission of Australia study indicates the following:



- there is not currently enough reliable data to rigorously quantify harm-related costs in New Zealand;
- even with improved data, such a process cannot be undertaken without:
  - substantial resources;
  - strong assumptions; and
  - a careful and complex methodology (that accounts for factors such as comorbidities and direction of causation).

Given the above, a qualitative treatment of harm-related costs in New Zealand is considered appropriate and conservative under the NCBA framework.

### 5.3 Benefits not quantifiable in monetary terms

As discussed above, gambling benefits include consumer enjoyment, production-side benefits largely accumulating to community groups and a government tax surplus. These benefits can be quantified in monetary terms and are therefore covered in the previous section of this report.

This section discusses some additional benefits that we do not consider quantifiable in monetary terms within this NCBA. These benefits include:

- wellbeing benefits flowing from the increased funding of sport;
- wellbeing benefits from increased funding to other sectors like arts and culture; and
- the employment-related adjustment costs that are avoided (compared to the counterfactual where gambling is banned).

#### Wellbeing benefits from increased funding of sport

Gambling is a major source of funding for participation in sports in New Zealand. In 2019, sports-related distributions from Lotto, Class 4 and TAB exceeded \$220m.<sup>132</sup> Funding from gambling contributes to the sports sector across many levels from youth to masters' leagues.

In the absence of gambling, it is unlikely that sports funding would reduce by \$220m p.a., as alternate funding mechanisms would likely be used (e.g., central or local-government funding). However, given the magnitude and reach of gambling's contribution to sports in New Zealand, alongside the funding pressure on these alternate mechanisms, it is reasonable to assume that without gambling, sporting activities would not occur to the same extent as they currently do.<sup>133</sup>

Wide community participation in sports in New Zealand is likely to have material wellbeing benefits to New Zealanders. Among other things, participation in sport has been found to increase physical and mental wellbeing; reduce the risk of diseases; and improve performance in the classroom.<sup>134</sup> Accordingly, the increased provision of sports in New Zealand from gambling funding is likely to be associated with wellbeing benefits to many sporting participants. There is little evidence, however, on the magnitude of the wellbeing externalities associated with sports participation in New Zealand. We therefore treat this benefit as a qualitative rather than quantitative one.

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<sup>132</sup> With Class 4 making the largest sports-related distributions of \$153m.

<sup>133</sup> In particular, smaller local-level sports activities which are often more constrained for funding may be disadvantaged.

<sup>134</sup> <https://www.health.govt.nz/news-media/news-items/ministry-health-and-sport-new-zealand-welcome-who-physical-activity-plan>



## Wellbeing benefits from increased funding of the arts

As with sports, benefits accrue to the arts sector in New Zealand that are incremental to gambling. Creative New Zealand, New Zealand Film Commission, Ngā Taonga Sound & Vision and the wider arts community received over \$85m of funding from gambling in 2019, supporting a range of creative activities.<sup>135</sup> Similarly to sports, participation in arts is found to have positive wellbeing effects, including improvement to mental health,<sup>136</sup> stress-relief, building individual resilience and enhancing communities. However, as with participation in sports, there is little evidence on the magnitude of the wellbeing externalities associated with the arts in New Zealand. We therefore treat this benefit as a qualitative rather than quantitative one.

## Wellbeing adjustment costs avoided

As is noted in Section 3, while often discussed, employment per se is not generally regarded as a benefit in a NCBA analysis because the jobs created in one sector are assumed to be jobs not created in another part of the economy. That said, if gambling was banned, there is no doubt there would be large adjustment costs, social and economic, as the thousands of people currently directly or indirectly employed from gambling lost their jobs. Such job losses would include hospitality employees relating to Class 4 gambling; employees in the racing industry; potential Lotto retailer staff; staff directly employed by the gambling service providers such as Lotto NZ, the TAB, the Class 4 societies; and those employed in New Zealand’s six casinos. In the case of pubs and bars with Class 4, this revenue can be critical to the operation of the venue, especially in rural or low population areas. A benefit of gambling, therefore, is the adjustment costs that are avoided compared to a counterfactual of gambling being banned. Given the lack of data on the likely magnitude of these adjustment costs, they are assessed in qualitative terms in this NCBA.

## 5.4 Overall assessment of non-quantifiable costs and benefits of gambling

Table 29 below summarises the costs and benefits that arise from gambling in New Zealand that are not considered quantifiable in monetary terms.

**Table 29: NCBA assesment – non-quantifiable costs and benefits**

National Wellbeing Cost-Benefit Analysis of Gambling in New Zealand	
Not quantifiable in monetary terms:	
Non-quantifiable benefits	Non-quantifiable costs
Wellbeing benefits from increased sports funding	Gambling harm-related costs, including:
Wellbeing benefits from increased arts funding	– Health costs
Wellbeing adjustment costs avoided	– Relationship costs
	– Work/study costs
	– Culture-related costs
	– Crime-related costs

<sup>135</sup> This is captured in the following quote by the CEO of Creative New Zealand: “Three ways New Zealanders can help mitigate the negative effect of the decline in revenue is by going to the arts, giving to the arts, or buying a Lotto ticket.” From: <https://www.creativenz.govt.nz/news/decline-in-lotto-revenue-to-affect-the-arts>

<sup>136</sup> Gordon-Nesbitt, H. (2020)

The cost side includes gambling harm-related costs: including health costs; relationship costs; work/study costs; culture-related costs; and crime-related costs. While there is insufficient evidence and substantial methodological complexity to estimate the scale of these costs, what is evident from this assessment is:

- the costs at the individual level can in cases be high; however
- the costs are concentrated around a small population of problem and moderate-risk gamblers.

Non-quantifiable benefits include wellbeing benefits from increased sports funding; wellbeing benefits from increased arts funding; and wellbeing adjustment costs avoided under the current industry structure and regulatory regime.

## 6 The overall costs and benefits of gambling

The table below presents our summary of the wellbeing effects of gambling on New Zealanders. Where it has been possible, we have quantified the costs and benefits in monetary terms. Where reliable estimates of the costs and benefits in monetary terms are not available, we identify the costs and benefits qualitatively.

**Table 30: Overall summary of the costs and benefits of gambling**

National Wellbeing Cost-Benefit Analysis of Gambling in New Zealand					
Quantifiable in monetary terms:					
Gross benefits	p.a., \$m	Quantifiable costs	p.a., \$m	Quantifiable net benefits	p.a., \$m
<b>Consumption-side</b>					
Enjoyment benefit to gamblers:	2,740 to 3,160	Quantifiable cost to gamblers:	2,090	Consumer surplus:	650 to 1,070
<b>Production-side</b>					
Revenue (excl. duties):	1,800	Costs to gambling operators	990	Producer surplus:	810
<b>Gambling duties</b>					
Gambling duty revenue:	280	Not applicable	-	Gambling duty surplus:	280
<b>Total</b>					
Total quantifiable benefits:	4,820 to 5,240	Total quantifiable costs:	3,080	Total quantifiable net benefits:	1,740 to 2,160
Not quantifiable in monetary terms:					
Non-quantifiable benefits		Non-quantifiable costs			
Wellbeing benefits from increased sports funding		Gambling harm-related costs, including:			
Wellbeing benefits from increased arts funding		– Health costs			
Wellbeing adjustment costs avoided		– Relationship costs			
		– Work/study costs			
		– Culture-related costs			
		– Crime-related costs			

Overall, we find gambling generates quantifiable net benefits to New Zealand of around \$1,740m to \$2,160m p.a., with the largest net benefits (around \$650 to \$1,070m p.a.) accruing to the 7 out of 10 New Zealand adults who enjoy gambling recreationally. The net benefits of gambling generated on the production-side of around \$810m p.a. are also substantial, with the majority of those benefits being distributed to community and sporting organisations. Finally, gambling duties generate a surplus accruing to the Government of around \$280m p.a.

Alongside these quantifiable costs and benefits, gambling generates a number of costs and benefits that we do not consider quantifiable reliably in monetary terms. The cost side includes gambling harm-related costs: health costs; relationship costs; work/study costs; culture-related costs; and crime-

related costs. These harm-related costs can be high at the individual level, however, they are concentrated around a small population of problem and moderate-risk gamblers.

The non-quantifiable benefits associated with gambling include wellbeing benefits from increased sports funding; wellbeing benefits from increased arts funding and the adjustment costs avoided compared to a situation where gambling was banned.

When weighing up the overall wellbeing effects of gambling, all costs and benefits must be considered - both quantifiable and non-quantifiable.

## 6.1 Sensitivity analysis

The robustness of the above quantitative findings was evaluated by examining the effects of using alternative values for the key assumptions underlying the analysis. The assumptions tested were:

- the price of gambling;
- the price elasticity of demand;
- the proportion of gambling expenditure accounted for by moderate-risk and problem-gamblers; and
- the cost of capital.

The results are presented in Table 31 below.

**Table 31: Sensitivity analysis, \$m, p.a.**

	Low estimate	Relative to BC	High estimate	Relative to BC
<b>Base case (BC)</b>	1,749	–	2,165	–
<b>Consumption-side</b>				
Higher price (\$0.14)	1,945	196	2,486	321
Lower price (\$0.08)	1,581	–168	1,890	–275
Lower price elasticity of demand (0.7 and 1.2)	1,803	54	2,318	153
Higher price elasticity of demand (0.9 and 1.4)	1,703	–46	2,046	–119
Lower PG/MR spend (12%)	1,786	37	2,226	61
Higher PG/MR spend (22%)	1,709	–40	2,100	–65
<b>Production-side</b>				
Lower cost of capital (4%)	1,786	37	2,202	37
Higher cost of capital (8%)	1,712	–37	2,128	–37
<b>Composite scenario</b>				
Optimistic scenario	2,089	340	2,784	620
Pessimistic scenario	1,470	–279	1,702	–463

The results of the sensitivity analysis documented in above indicate that the NCBA analysis is most sensitive to assumptions relating to price. On the other hand, the assumption about the cost of capital has little impact on the analysis. The NCBA is moderately sensitive to the assumptions in regard to the elasticities and the moderate-risk/problem gambler spend ratio.

Each of the sensitivity tests is discussed in turn below.

### **Price**

In the base case, the weighted average price is estimated at \$0.11 (GST excl.) Using a higher price of \$0.14 results in \$196m to \$321m p.a. higher net benefits (than in the base case). A lower price of \$0.08 results in \$168m to \$275m p.a. lower net benefits.

### **Elasticity**

In the base case, the elasticity of demand for gambling is assumed as between 0.8 and 1.3. Using lower elasticity assumptions of 0.7 and 1.2 results in \$54m to \$153m p.a. higher net benefits. Using higher elasticity assumptions of 0.9 and 1.4 results in lower net benefits of \$46m to \$119m p.a.

### **Moderate-risk and problem gambler spend**

In the base case, the moderate-risk and problem gambler spend is assumed to account for 17% of total expenditure. This share of expenditure is excluded from the calculation of consumer surplus, as it is assumed that moderate-risk and problem gamblers receive no benefits from gambling. If instead we assume that this group account for a lower proportion of expenditure (12%), the result is a \$37m to \$61m p.a. increase in net benefits. Assuming a higher proportion (22%) results in \$40m to \$65m p.a. lower net benefits.

### **Cost of capital**

In the base case, the cost of capital is assumed to be 6%. Using a lower cost of capital of 4% results in \$37m higher net benefits, while a higher cost of capital of 8% results in \$37m p.a. lower net benefits.

In addition, to 'stress testing' the NCBA results, we constructed two extreme scenarios where all the assumptions above err towards minimising or maximising the effects.

### **Optimistic scenario**

In the optimistic scenario, a high price of \$0.14; lower elasticities of 0.7 and 1.2; a lower share of total spend by moderate-risk and problem gamblers of 12%; and a cost of capital of 4% is used. The result is an increase in the estimated net benefits of \$340m to \$620m p.a. The total quantifiable net benefits of gambling increase to between \$2,089m and \$2,784m p.a. in this optimistic scenario.

### **Pessimistic scenario**

In the pessimistic scenario, a low price of \$0.08; higher elasticities of 0.9 and 1.4; a higher share of total spend by moderate-risk and problem gamblers of 22%; and a cost of capital of 8% is used. The result is a decrease in the estimated net benefits of \$279m to \$463m p.a. Even in this pessimistic scenario the monetary net benefits of gambling remain high at around \$1,470m to \$1,702m p.a.

Overall, the sensitivity analysis and stress testing suggest the quantifiable net benefits result of around \$1,740m to \$2,160m p.a. to be relatively robust. While the results of the NCBA are most sensitive to the price assumption, even with a significantly lower price assumption the decrease in net benefits is not great, between \$170 and \$275m p.a. The stress testing analysis indicates that even when the most pessimist assumptions values are adopted for all the key assumptions at the same time, the net quantifiable benefits are still significant.

## 7 Conclusions

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This report presents an assessment of the effects of gambling on wellbeing in New Zealand using the framework of national cost-benefit analysis. Rather than analysing one aspect of the industry in isolation, NCBA allows us to methodologically categorise and assess all the wellbeing effects of gambling in New Zealand.

As Section 2 details, gambling is a major activity in New Zealand – with around 7 in 10 New Zealand adults gambling at least once a year. In 2019, expenditure on the four main gambling types (Lotto; TAB; Class 4 and casinos) totalled \$2,400 million. The most popular form of gambling in New Zealand is Lotto, while the form with the highest total expenditure is Class 4 gambling.

Gambling creates a range of both costs and benefits. One well-known and substantial cost is the negative effects gambling can have on problem gamblers; while a well-known benefit is the substantial grants-funding gambling provides for sports, arts and community groups. Gambling also has effects that are often overlooked in academic research, such as the enjoyment benefits to recreational gamblers and the effects on government surplus. Through NCBA, we are able to present a careful and rigorous view on all the cost and benefits that are incremental to gambling in New Zealand.

As is standard in NCBA, this analysis covers:

- costs and benefits quantifiable in monetary terms; and
- costs and benefits not quantifiable in monetary terms.

A large portion of the costs and benefits that arise from gambling can be quantified, falling under the following three categories: consumption-side; production-side; and gambling duties. On the consumption-side, the enjoyment benefits to people who gamble recreationally (excluding moderate-risk and problem gamblers) can be quantified using standard economic methodology. We find overall net consumption benefits (gross enjoyment benefit minus what people pay to gamble) worth around \$650m to \$1,070m p.a. This net benefit is not a money flow per se, rather it is a monetary valuation of the net enjoyment value of gambling to participants.

Just as recreational gamblers receive a net benefit from the consumption of gambling, producers receive net benefits from supplying gambling services. What is particular to the gambling industries is that these net benefits are largely distributed or applied to the broader community (i.e., sports, community activities and the arts). Using published financial data for each of the four gambling types, we have estimated the gross benefits (revenue minus duties) and costs (i.e., operating costs; cost of capital; gambling fees and Problem Gambling Levy) to estimate the production-side net benefits. Known as producer surplus, these net benefits are estimated to be worth around \$810m p.a. The production-side net benefits are allocated in different ways depending on the gambling type:

- In the case of Lotto, around half goes to Creative NZ, Sport NZ and New Zealand Film Commission, while the rest is largely distributed to community organisations.
- Proceeds from TAB racing betting are distributed to the racing industry, while proceeds from TAB sports betting are largely distributed to national sporting bodies.
- Net benefits from Class 4 gambling are either distributed in community grants or applied to authorised purposes by clubs (e.g., sports or RSA clubs).
- As commercial businesses, the net benefits from casinos are reinvested into the business or distributed to shareholders.

The final category of quantifiable benefits are those that accrue to the Government (and thus New Zealanders as a whole) through gambling duty revenue. These duties include lottery duty; betting duty; gaming machine duty; and casino duty, which total to \$280m p.a. Unlike gambling fees and the Problem Gambling Levy which are specifically designed to recover gambling-related costs incurred by the Government, gambling duties are not targeted to specific government activities, instead they generate general government revenue. This \$280m p.a. is a net benefit from gambling in the form of funds available for the Government to contribute to the wellbeing of New Zealand that would not be collected in the absence of gambling.

With consumption-side net benefits of around \$650 to \$1,070m p.a., production-side net benefits of around \$810m p.a. and gambling duty net benefits of around \$280m p.a., we estimate total quantifiable net benefits from gambling to be around \$1,740m to \$2,160m p.a.<sup>137</sup> While we find substantial quantifiable net benefits from gambling that largely accrue to those who enjoy gambling, the wider community and from gambling duty revenue, the existence of further non-quantifiable costs and benefits means that these calculations cannot be viewed in isolation.

Non-quantifiable costs relating to gambling include different forms of harm-related costs: health costs; relationship costs; work/study costs; culture-related costs; and crime-related costs. These are concentrated around problem gamblers (approx. 8,000 people) and moderate-risk gamblers (approx. 69,000 people) and can be incurred by the individual; affected others; and, to some extent, others in society.

Our analysis identifies a range of possible harm-related costs of varying severity, however, the high prevalence of comorbid disorders and issues surrounding the direction of causation add significant complexity to isolating the harms arising from gambling and assessing their magnitude. A review of attempts to quantify the harm-related costs highlights these issues, alongside the substantial data, resources and assumptions required to assess the magnitude of these costs. What is evident is that these harm-related costs at the individual level can be high; however, they are concentrated around a small population of problem and moderate-risk gamblers.

Finally, there are non-quantifiable benefits that arise from gambling including wellbeing benefits from increased sports funding; wellbeing benefits from increased arts funding and the adjustment costs avoided under the current industry structure.

The results of our estimation of the quantifiable costs and benefits and assessment of the non-quantifiable costs and benefits of gambling are presented in Tables 32 and 33 below.

**Table 32: Quantifiable costs and benefits of gambling in New Zealand, p.a., \$ million,**

	Gross benefits	Costs	Net benefits
Consumption-side	2,740 to 3,160	2,090	650 to 1,070
Production-side	1,800	990	810
Government	280	-	280
Total	4,820 to 5,240	3,080	1,740 to 2,160

<sup>137</sup> These calculations are likely to underestimate the monetary benefits by assigning no benefits to moderate-risk gamblers and by not allowing for the adjustment costs and black-market costs that would arise if gambling was made illegal.

**Table 33: Non-quantifiable costs and benefits of gambling in New Zealand**

Benefits	Costs
Wellbeing benefits from increased sports funding	Gambling harm-related costs, including:
Wellbeing benefits from increased arts funding	– Health costs
Wellbeing adjustment costs avoided	– Relationship costs
	– Work/study costs
	– Culture-related costs
	– Crime-related costs

The overall effects on wellbeing of gambling in New Zealand incorporate all the benefits and costs in Tables 32 and 33, and all are relevant to informed decision-making in the sector. The Government and industry both have important roles to provide a balance between the costs and benefits of gambling and ensuring the costs of gambling are minimised.



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# Appendix 1: The Problem Gambling Severity Index (PGSI)

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The PGSI was developed in Canada in 2001 by Ferris and Wynne and has since become an international standard for measuring problem gambling severity. The PGSI is an evolution of older measures including DSM-IV, SOGS and SOGS-R.

The PGSI consists of nine items and each item is assessed on a four-point scale: never; sometimes; most of the time; almost always. Responses to each item are given the following scores:

- Never = zero;
- Sometimes = one;
- Most of the time = two; and
- Almost always = three.

When scores to each item are summed, a total score ranging from 0 to 27 is possible.

A PGSI score of eight or more represents a problem gambler. Scores between three and seven represent 'moderate-risk' gambling (gamblers who experience a moderate level of problems leading to some negative consequences) and a score of one or two represents 'low-risk' gambling (Gamblers who experience a low level of problems with few or no identified negative consequences). The PGSI questions are listed below.

*Thinking about the last 12 months:*

- 1 *Have you bet more than you could really afford to lose?*
- 2 *Have you needed to gamble with larger amounts of money to get the same feeling of excitement?*
- 3 *When you gambled, did you go back another day to try to win back the money you lost?*
- 4 *Have you borrowed money or sold anything to get money to gamble?*
- 5 *Have you felt that you might have a problem with gambling?*
- 6 *Has gambling caused you any health problems, including stress or anxiety?*
- 7 *Have people criticized your betting or told you that you had a gambling problem, regardless of whether or not you thought it was true?*
- 8 *Has your gambling caused any financial problems for you or your household?*
- 9 *Have you felt guilty about the way you gamble or what happens when you gamble?*
- 10 *Has gambling caused you any health problems, including stress or anxiety?*
- 11 *Have people criticized your betting or told you that you had a gambling problem, regardless of whether or not you thought it was true?*
- 12 *Has your gambling caused any financial problems for you or your household?*
- 13 *Have you felt guilty about the way you gamble or what happens when you gamble?*

## Appendix 2: Prevalence of gambler types by country

Country	Study	Measure	Sample characteristics	Problem gambler, previous year prevalence, %	Moderate-risk gambler, previous year prevalence, %	Combined, previous year prevalence, %
Switzerland	Brodbeck et al. (2009)	NODS	6,000 people aged 18+	0.02	0.1	0.12
Singapore	National Council on Problem Gambling (2015)	DSM-IV	3,000 people aged 18+	0.2	0.5	0.7
The Netherlands	Bieleman et al. (2011); Goudriann (2014)	SOGS	6,000 people	0.2	0.7	0.9
New Zealand	National Gambling Study (2015)	PGSI	6,250 people aged 18+	0.2	1.8	2
Portugal	Lopes (2009)	SOGS	3,850 people aged 18 – 70	0.2	–	–
Norway	Bakken et al. (2009)	NODS	3,509 people aged 16 – 74	0.3	0.4	0.7
Spain	Becona (2004)	NODS	1,600 people aged 18+	0.3	0.3	1.6
Germany	Meyer et al. (2015)	DSM-IV	15,000 people aged 14 – 64	0.3	1.7	2
Belgium	Druine et al. (2006)	DSM-IV	3,000 people aged 16 – 99	0.4	1.6	2
Great Britain	Seabury & Wardle, (2015)	PGSI	11,800 people aged 16+	0.4	–	–

Slovenia	Makarovič et al. (2008)	SOGS	10,000 people	0.5	1.5	2
France	Costes et al. (2015)	PGSI	15,600 people aged 15 – 75	0.5		
Austria	Kalke et al. (2011)	DSM-IV	6,300 people aged 14 – 65	0.7	0.4	1.1
South Korea	Park et al. (2010)	DIS	6,500 people aged 18 – 64	0.8	3	3.8
Iceland	Olason et al. (2015)	PGSI	1,900 people aged 18 – 70	0.8	–	–
Brazil	Tavares et al. (2010)	DSM-IV-J	3,000 people aged 14+	1	1.3	2.3
Finland	Raisamo et al. (2014)	PGSI	4,500 people aged 15 – 74	1	2.1	3.1
Australia	Australian Gambling Research Centre (2017)	PGSI	2,900 people aged 15+	1.1	2.6	3.7
Hong Kong	Wan et al. (2012)	DSM-IV	2,000 people aged 15 – 64	1.4	1.9	3.3
Macau	Fong & Ozorio (2005)	DSM-IV	1,100 people aged 15 – 64	1.8	2.5	4.3
Sweden	Abbott et al. (2014)	SOGS	8,200 people aged 16 – 84	2	2.5	4.5
Northern Ireland	Northern Ireland Statistics and Research Agency (2010)	PGSI	1,000 adults aged 16+	2.2	–	–
South Africa	Kincaid et al. (2013)	PGSI	3,000 people aged 18+	3.2	–	–
Canada	Cox, Yu, Afifi & Ladouceur (2005)	PGSI	34,000 people aged 15+	–	–	2



Italy	Bastiani et al. (2011)	PGSI	32,000 people aged 15 – 64	–	–	2.2
Czech Republic	Mravčík et al. (2014)	PGSI	2,100 people aged 15 – 64	–	–	2.3
USA	Welte, Barnes, Tidwell, Hoffman & Wieczorek (2015)	SOGS	2,900 people aged 18+	–	–	5

Source: Calado & Griffiths (2016).

Key: SOGS: South Oaks Gambling Screen; DSM-IV: Diagnostic and Statistical Manual of Mental Disorders; NODS: The NORC Diagnostic Screen for Gambling Disorders

Note: Where problem gambling severity measures SOGS, DSM-IV or NODS have been used, equivalent categories have been converted to and presented above as PGSI moderate-risk and problem gamblers.

## Appendix 3: Estimate of expenditure by gambler types

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This Appendix presents our estimates of expenditure on gambling by the different gambler types.

While it is clear that an average problem gambler spends more on gambling than a non-problem gambler, there is currently no data collected in New Zealand on the average expenditure of each gambler type.

Neither the NGS nor the HLS report on the portion of expenditure attributable to each gambler type, nor do any recent New Zealand-based studies. The only New Zealand-based study that provides such an estimation is Abbott and Volberg (1999) in phase one of the 1999 National Gambling Prevalence Survey (which preceded the National Gambling Study), finding moderate-risk and problem gamblers combined accounted for 19% of reported gambling expenditure. In the Abbott and Volberg (1999) study, there was a higher percentage of problem gamblers (0.5% as opposed to 0.2% today) and a lower percentage of moderate-risk gamblers (1.2% vs. 1.8% today).<sup>138</sup>

The lack of current expenditure data by gambler type has given rise to unsubstantiated claims surrounding problem gambler spend. Problem Gambling Foundation (2020) for example, simply takes a range based on incomparable Australian data,<sup>139</sup> stating that problem gamblers contribute to 30 to 60% of all class 4 gambling expenditure in New Zealand. If, for example, half of New Zealand's problem gamblers were class 4 players, this would imply that 4,000 individuals spend between \$282m and \$563m per year. At the higher end of this range, this equates to an average individual spend of \$12,000 per month or \$140,000 per year, over four times the median income in New Zealand.<sup>140</sup>

While the NGS does not report on expenditure by gambler type across all types of gambling, it does provide data on expenditure for different Class 4 gamblers. Given the paucity of recent New Zealand-based studies, and the inability to apply estimates from overseas studies to the New Zealand gambling population, the NGS class 4 expenditure data is considered the best available basis for calculation. As outlined below, information from the NGS is combined with current prevalence rates of each gambler type, adjusted for under-reporting and applied to 2019 expenditure data.

### Methodology

The NGS does not report on expenditure by gambler type across all types of gambling, however, it does report on the expenditure for different Class 4 gamblers, stating (p.49):

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<sup>138</sup> It should be noted that the measurement of problem gambling severity in this study was SOGR-R rather than the comparatively recent PGSI. SOGR-R measurements have been converted to PGSI categories, whereby SOGR-R 3–4 is equivalent to moderate-risk gambler and SOGR-R 5 is equivalent to problem gambler. These have been converted to PGSI categories, whereby the SOGR-R 'problem gambler' is assumed equivalent to the PGSI moderate-risk gambler; and the SOGR-R probable pathological gambler is assumed equivalent to the PGSI problem gambler.

<sup>139</sup> While overseas studies that assess the expenditure of different gambler types exist, two key issues severely limit comparability with the New Zealand sector. The first issue is differences in prevalence of problem and moderate-risk gamblers in different jurisdictions. Williams and Wood (2007) for example, found problem and moderate-risk gamblers to account for 35% of gambling expenditure in Ontario. In this study, problem gambler prevalence was 1% (compared to New Zealand's 0.2%), while moderate-risk gambler prevalence was 3.7% (compared to New Zealand's 1.8%). This would at least in part explain a relatively high proportion of total expenditure by these two, relatively large, groups. The second issue is socioeconomic differences between different jurisdictions, in particular differences in disposable income. Australian studies including Productivity Commission of Australia (1999) estimate around 1/3 of gambling expenditure is from moderate-risk and problem gamblers. Alongside different problem gambler prevalence rates, in Australia's case this is likely also influenced by relatively high median income levels. The current median weekly income of full time employees in Australia is \$1,711, significantly higher than that in New Zealand. Spending a significant amount on gambling requires significant disposable income, which in the case of Australia, is (on average) relatively speaking, high.

<sup>140</sup> <https://www.stats.govt.nz/information-releases/labour-market-statistics-income-june-2020-quarter>

- moderate-risk/problem gamblers' <sup>141</sup> expenditure on Class 4 is an average of \$117 per month;
- low-risk gamblers' expenditure on Class 4 is an average of \$57 per month; and
- non-problem gamblers' expenditure on Class 4 is an average of \$28 per month.

Rather than basing calculations on the dollar values presented above, it is possible to consider expenditure in terms of ratios, i.e:

- Class 4 moderate-risk and problem gamblers on average spend four times as much as non-problem gamblers; and
- Class 4 low-risk gamblers spend on average two times as much as non-problem gamblers.

A common critique of using self-reported expenditure data like the NGS, however, is that there is a tendency for higher-risk gamblers to under-report the amount they actually spend. When computed on a population level, the reported expenditure often does not correspond with actual expenditure data.<sup>142</sup>

Accounting for the likelihood of under-reporting of expenditure by moderate-risk and problem gamblers, we therefore make the assumption that this group does not spend an average of four times as non-problem gamblers, rather they spend an average of eight times as much.

The NGS does not provide expenditure data for different gambling types for Lotto, TAB and casino gambling. We therefore make the assumption that the proportions for Class 4 spending above hold true for forms of gambling other than Class 4. In other words, regardless of what form of gambling they are undertaking, we assume a moderate-risk or problem gambler is likely to spend eight times that of a non-problem gambler, and a low-risk gambler is likely to spend three times that of a non-problem gambler. This is considered a conservative assumption, given studies tend to indicate that the behaviour of problem gamblers who play electronic gaming machines tends to be more extreme than problem gamblers who play Lotto, for example.<sup>143</sup>

Given total expenditure on gambling in 2019 of \$2,400m<sup>144</sup> and the numbers of New Zealanders in each gambler subtype from the NGS (refer Table 2 above) the respective portions of expenditure can be calculated as follows (where x = the expenditure by the average non-problem gambler per annum on all four types of gambling in aggregate):

- non-problem gamblers account for approximately \$1,743m p.a., or 73% of expenditure;
- low-risk gamblers account for approximately \$237m p.a., or 10% of expenditure; and
- moderate-risk/problem gamblers account for approximately \$412m p.a., or 17% of expenditure.

The resulting estimated net expenditure on gambling by gambler type in NZ in 2019 is shown in Table 37 below.

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<sup>141</sup> It is common for studies to combine moderate-risk and problem gamblers. A contributing factor to this is likely the statistically small population of problem gamblers. Given significantly more extreme behaviour is demonstrated by problem gamblers, it is likely that among this combined group, problem gamblers on average spend a lot more than moderate-risk gamblers.

<sup>142</sup> Williams and Wood (2017).

<sup>143</sup> Orford (2012).

<sup>144</sup> GST inclusive.

**Table 34: Estimated expenditure by gambler type in New Zealand, 2019**

Gambler type	Population	Estimated 2019 spend \$m	Proportion of total expenditure %	Average monthly spend \$
Non-problem gambler	2,613,000	1,753	73	56
Low-risk gambler	177,000	237	10	112
Moderate-risk/problem gambler	77,000	412	17	447

Our analysis finds on average:

- a non-problem gambler's expenditure is \$56 per month;
- a low-risk gambler's expenditure is \$112 per month; and
- a moderate-risk and problem gambler's combined expenditure is \$447 per month.

In the case of moderate-risk and problem gamblers, while the average net spend on gambling is estimated to be \$447 per month, moderate-risk gamblers at the lower end of the scale may spend a lot less and serious problem gamblers may spend a lot more (at least those who have the financial means to do so).

We note, given the lack of New Zealand-based research in this area, these estimates are considered indicative. We also consider this an area where further research would be beneficial to the gambling sector.

Our sensitivity analysis in Subsection 6.1 of this report indicates that our estimates of the overall quantitative net benefits of gambling are not highly sensitive to the assumption around the percentage of gambling expenditure accounted for by moderate-risk and problem gamblers.

## Appendix 4: Estimates of price elasticities in the literature

Study	Area	Price elasticity
<b>Lotteries</b>		
Clotfelter and Cook (1990) - lotto	USA	-2.55
Clotfelter and Cook (1990) - numbers game	USA	-3.05
Farrel and Walker (1997)	UK	-1.55 to -2.6
Berl (1997)	New Zealand	-1.05
<b>Access Economics (1998)</b>		
Tattslotto - low turn over	Australia	-2.19
Tattslotto - high turnover	Australia	-0.24
Ozlotto	Australia	-0.2 to -0.8
Powerball	Australia	-0.03 to -0.2
Gulley and Scott (1993)	USA	-1.15, -1.92, -1.2
Farrell et al. (1999)	UK	-1.05 (short run), 1.55 (long run)
Forrest et al. (2000)	UK	-1.03
Beeenstock and Haitovsky (2001)	Israel	-0.65
Lin and Lai (2006)	Taiwan	-0.14
Yu (2008)	Canada	-0.67
Coon and Whieldon (2016)	Maryland	1.2 to -6.4
Galet (2015)	Global	-1.066 to -1.105
<b>Betting</b>		
Suits (1997)	24 US states	-1.36 to -1.82
Suits (1997)	Nevada	-1.64
Gruen (1976)	New York City	-1.57
Morgan and Vashce (1979)	California	-1.48
BERL (1997)	New Zealand	-0.7
Morgan and Vasche (1979)	California	-1.3
Thalhiemer and Ali (1982)	Ohio, Kentucky	-2.85, -3.06, -3.09
Gallet (1995)	Global	-1.01 to -1.188
Thalhiemer and Ali (1982)	New Jersey	-1.65
Suits - Sports betting (1979)	Nevada	-2.17
<b>Casinos</b>		
Swan (1992)	NSW	-1.9
Thalheimer and Ali (2003) - Casino EGM's	USA	-0.9 to -1.5
Landers (2008) - Casino EGM's	USA	-0.75 to -0.87
Gallet (2015)	Global	-0.68 to -0.76
<b>Other</b>		
Berl - EGMs and casino (1999)	New Zealand	-0.8
Paton et al - Betting shops (2004)	UK	-1.59, -1.62
Swan - Poker machines (1999)	NSW	-1.7
<b>All gambling</b>		
Swan (1992)	NSW	-1.6
Productivity Commission (1999)	Australia	-0.8 to -1.3

Source: Productivity Commission, (1999), updated by TDB.

## Appendix 5: 2019 Class 4 grants breakdown

**Table 35: Class 4 Top 20 Largest Grants Recipients, 2019**

Organisation	\$, 000s	Granting Societies
Supreme Sikh Council Of New Zealand Incorporated	3,515	6
Bay Of Plenty Rugby Union Incorporated	1,866	12
Wellington Rugby Football Union Incorporated	999	10
A Better Chance Charitable Trust	823	2
Eastern Suburbs Association Football Club Incorporated	798	7
Blue Light Ventures Incorporated	764	22
New Zealand Chinese Culture And Arts Exchange Centre	724	3
Surf Life Saving Northern Region Incorporated	703	16
Synergy Community Trust	701	2
North Harbour Rugby Union Incorporated	678	8
The Women And Grief Home Care Trust	609	8
New Zealand Child And Youth Education Trust	462	1
New Zealand Multicultural Foundation	351	2
Whangarei Boys' High School Old Boys' Association Incorporated	296	5
Asian Library Trust	287	2
Aotea Sport And Recreation Association Incorporated	250	3
New Culture Art And Education Foundation	249	2
New Zealand Council Of Victim Support Groups Incorporated	224	15
Autism Eden Trust	190	1
NZ Multicultural Exchange And Experience Centre	130	2

**Table 36: Class 4 Top 20 Number of Different Grants, 2019**

Organisation	No. of grants	Granting Societies
Supreme Sikh Council Of New Zealand Incorporated	86	6
Canterbury West Coast Air Rescue Trust	15	1
New Zealand Flying Doctor Trust	11	1
Auckland Rugby Union Incorporated	12	1
The Bruce Pulman Park Trust	21	4
Bay Of Plenty Rugby Union Incorporated	45	12
Waikato Rugby Union Incorporated	25	3
Canterbury Rugby Football Union Incorporated	13	3
Wellington Rugby Football Union Incorporated	41	10
Netball New Zealand Incorporated	12	5
Northland Rugby Union Incorporated	16	4
Counties Manukau Rugby Football Union (Incorporated)	30	10
Waitakere City Stadium Trust	4	2
The Order Of St John Northern Region Trust Board	13	11
A Better Chance Charitable Trust	39	2
Netball Waikato Bay Of Plenty Zone Incorporated	11	4
Touch New Zealand Incorporated	25	11
Eastern Suburbs Association Football Club Incorporated	55	7
The Order Of St John Central Region Trust Board	9	8
Northern Districts Cricket Association Incorporated	13	6

Source: KPMG, (2020).