Gambling during the COVID-19 pandemic

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Abstract

The aim of this paper is to provide a summary of gambling activity and gambling risk levels during the COVID-19 period, using high quality, national-level longitudinal data. Results presented in the paper show that between April 2019 and May 2020 there was a sharp decline in the number of Australians who said they had gambled in the previous 12 months. Around 52.9 per cent of Australians were estimated to have gambled when asked at the start of the pandemic, compared to the pre-pandemic rate of 65.9 per cent. By November, gambling rates had increased slightly to 58.7 per cent, still significantly lower than the 12 months leading up to April 2019. The decline in gambling rates was relatively consistent for males and females, but there was a much larger decline in those aged 35-45 when compared to other age groups. Using population estimates, results presented in the paper suggest that roughly 2.6 million fewer Australians gambled in the 12 months leading up to May 2020 than would have done if the April 2019 gambling prevalence levels continued into the COVID-19 pandemic. It is estimated that there were 2.7 million fewer adult Australians who bought raffle tickets, 1.7 million fewer adults who played a lottery game and 1.6 million fewer adults who played poker machines or gaming machines at a venue. There was also a decline in at-risk gambling observed over the period, particularly for females and those with relatively high levels of education, as well as an observed relationship between gambling during the pandemic and changes in life satisfaction.

1 Introduction and data

The COVID-19 pandemic has affected almost all aspects of life in Australia. At the time of writing (December 8th, 2020) there were 27,972 confirmed cases of COVID-19 in Australia, and 908 deaths attributable to the disease. While this is quite low in per-person terms (1.097 cases per 100,000 and 0.036 deaths per 100,000) relative to many other developed democracies with accurate reporting of data, the physical health impacts of COVID-19 are only a small part of the overall effect of the pandemic.

According to the Australian Bureau of Statistics' Labour Force Survey (ABS 2020), between March and May 2020, there was a 10.4 per cent decline in monthly hours worked for all Australians (9.4 per cent for males and 11.8 per cent for females). By September 2020, around half of this decline had been reversed, though there still has been a 5.7 per cent decline for males and a 4.3 per cent decline for females in monthly hours worked between March and September 2020 (5.1 per cent decline for males and females combined).

Partly due to this massive employment shock, but also due to the physical distancing and isolation measures imposed to stop the spread of the virus, there has also been a mental health worsening over the period. Using the longitudinal dataset presented and analysed for this paper, Biddle, Edwards et al. (2020a) showed that:

> In February 2017 … the average value [for the K6 measure of psychological distress] was 11.2. By April 2020, the score had increased to have a mean of 11.9. Between April and May 2020 there was a significant reduction in psychological distress, although the K6 measure was still above the pre-COVID-19 values (mean = 11.5 in May 2020). Mental health worsened again though between May 2020 and August 2020, with an average in our most recent data collection of 11.7.

By November 2020, psychological distress, hours worked, and household income have continued to improve, but are still below the levels measured prior to the spread of COVID-19 (Biddle, Edwards et al. 2020b). Life satisfaction had returned to pre-COVID levels though, albeit with a cumulative loss of wellbeing over the period equivalent to $16,905 per adult in Australia.

One aspect of life that has potentially been impacted by COVID-19 is gambling. On the one hand, during lockdown periods the opportunity to gamble in venues has been severely restricted potentially reducing the opportunity for certain forms of gambling activity. Some sporting events that many people are likely to gamble on have also been disrupted. On the other hand though, as people have spent more time at home either working or in receipt of JobKeeper/JobSeeker, the opportunity to participate in online gambling has increased. Furthermore, increases in income at the bottom end of the income distribution due to increased transfer payments may have increased the budgets for some people to be able to gamble. The direction of change in gambling over the period is therefore difficult to predict *a priori*, and may have moved in opposite directions for different types of individuals.

The aim of this paper is to provide data on gambling during COVID-19 pandemic period, comparing levels with those from the same questions in early 2019. In Section 2 we look at gambling prevalence in April 2019, May 2020 and November 2020. To help reflect on whether these changes are positive or negative, we use three separate sets of data in sections that follow. In Section 3, we look at community attitudes towards gambling prior to the pandemic, whereas in Section 4 we look at changes in a measure of problem gambling from April 2019 to November 2020. In Section 5 we examine the relationship between gambling and changes in

wellbeing outcomes and in Section 5 we provide some brief concluding comments.

The paper is primarily based on the May and November 2020 ANUpolls (the 38th and 44th waves of data collection on the Life in Australia™ panel) which collected information from 3,219 and 3,029 respondents aged 18 years and over across all eight States/Territories in Australia. Both surveys are weighted to have a similar distribution to the Australian population across key demographic and geographic variables. The Life in Australia panel are tracked through time, with 94.7 per cent of those who completed the November survey also having completed the May survey.[1]

2 Changes in gambling prevalence

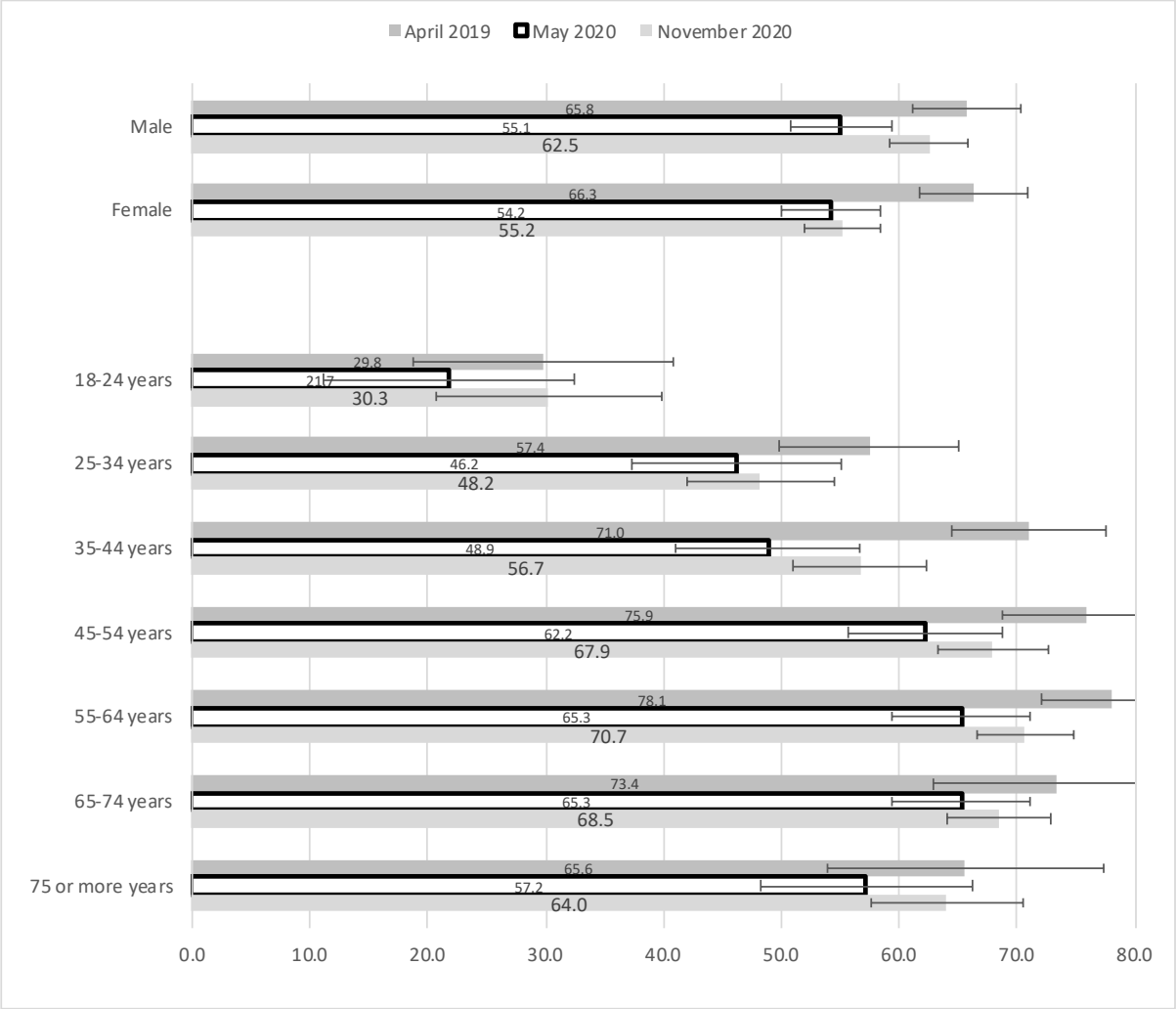
Between April 2019 and May 2020 there was a significant and substantial decline in the per cent of Australians who said they had gambled in the previous 12 months. Across eleven types of gambling (described below), 52.9 per cent of Australians were estimated to have gambled when asked in the first two months prior to the spread of COVID-19 compared to 65.9 per cent who said they'd gambled when asked prior to the pandemic. By November 2020, rates of gambling had increased slightly from the low level during the height of the first wave of infections – to 58.7 per cent – but there were still significantly fewer Australians who said that they gambled in the 12 months leading up to November 2020 compared to the 12 months leading up to April 2019.

The decline in gambling prevalence between April 2019 and May 2020 was reasonably consistent for males and females (10.7 percentage points and 12.2 percentage points respectively). Across the age distribution though, there were much larger declines in the middle part of the age distribution (Figure 1). Specifically, there was a 22.1 percentage point decline in gambling prevalence for those 35 to 44 years old (71.0 per cent to 48.9 per cent), with above average declines for those aged 45 to 54 years (13.7 percentage points) and those aged 55 to 64 years (12.8 percentage points).

The increases that occurred between April 2020 and November 2020 as lockdown restrictions also varied by demographic characteristics. There was very little increase between April and November for females, but a 7.4 percentage point increase for males. Indeed, the gambling rate for males is now back to what it was (more or less) in April 2019, whereas for females gambling has stayed at the rates experienced during the peak of the lockdown period.

Gambling rates are also back close to what they were prior to the pandemic for young Australians (aged 18 to 24 years) as well as older Australians (aged 75 years and over). For those in the middle part of the age distribution (particularly those aged 25 to 54 years), gambling rates were still well below the April 2019 levels.

Figure 1 Gambling prevalence by age and sex – April 2019, May 2020, and November 2020

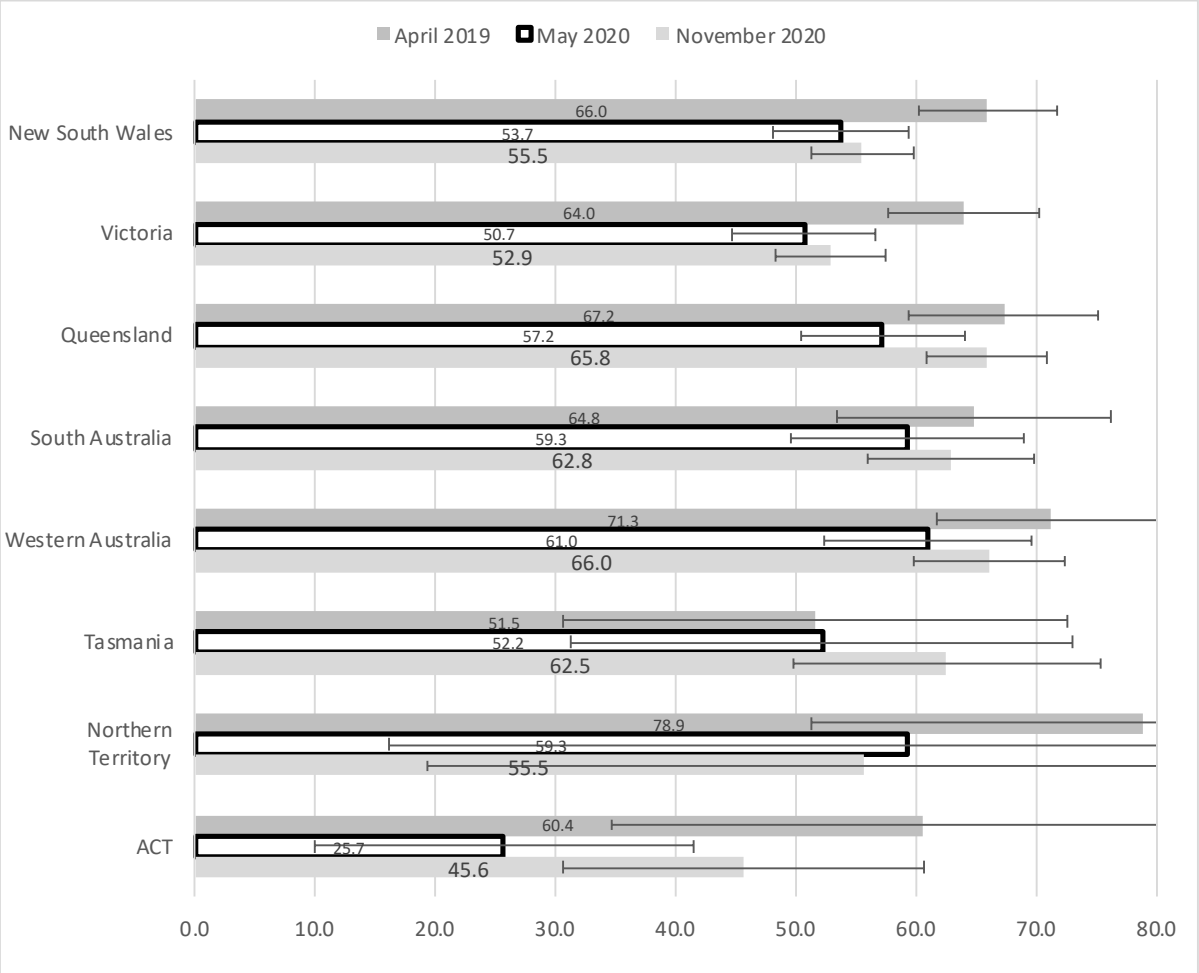


Notes: The "whiskers" on the bars indicate the 95 per cent confidence intervals for the estimate.

Source: ANUpoll, April 2019, May 2020 and November 2020.

Gambling policy is set in Australia at the State/Territory level. While we do not have large sample sizes for all States and Territories in our dataset, we can see some variation in the change through time in different jurisdictions (Figure 2). Specifically, there were very large declines in the ACT and the Northern Territory (albeit with large standard errors) up until the early stages of the pandemic and to a lesser extent Victoria and New South Wales. The declines in Tasmania and South Australia were much smaller. By November 2020, gambling rates were still lower in New South Wales, Victoria, the ACT and the Northern Territory than they were in 2019 (though the standard errors are quite large for the last two jurisdictions). Rates were much closer to pre-COVID levels in Queensland, South Australia, and Western Australia, with rates higher in Tasmania than they were pre-COVID.

Figure 2 Gambling prevalence by State/Territory – April 2019, May 2020, and November 2020

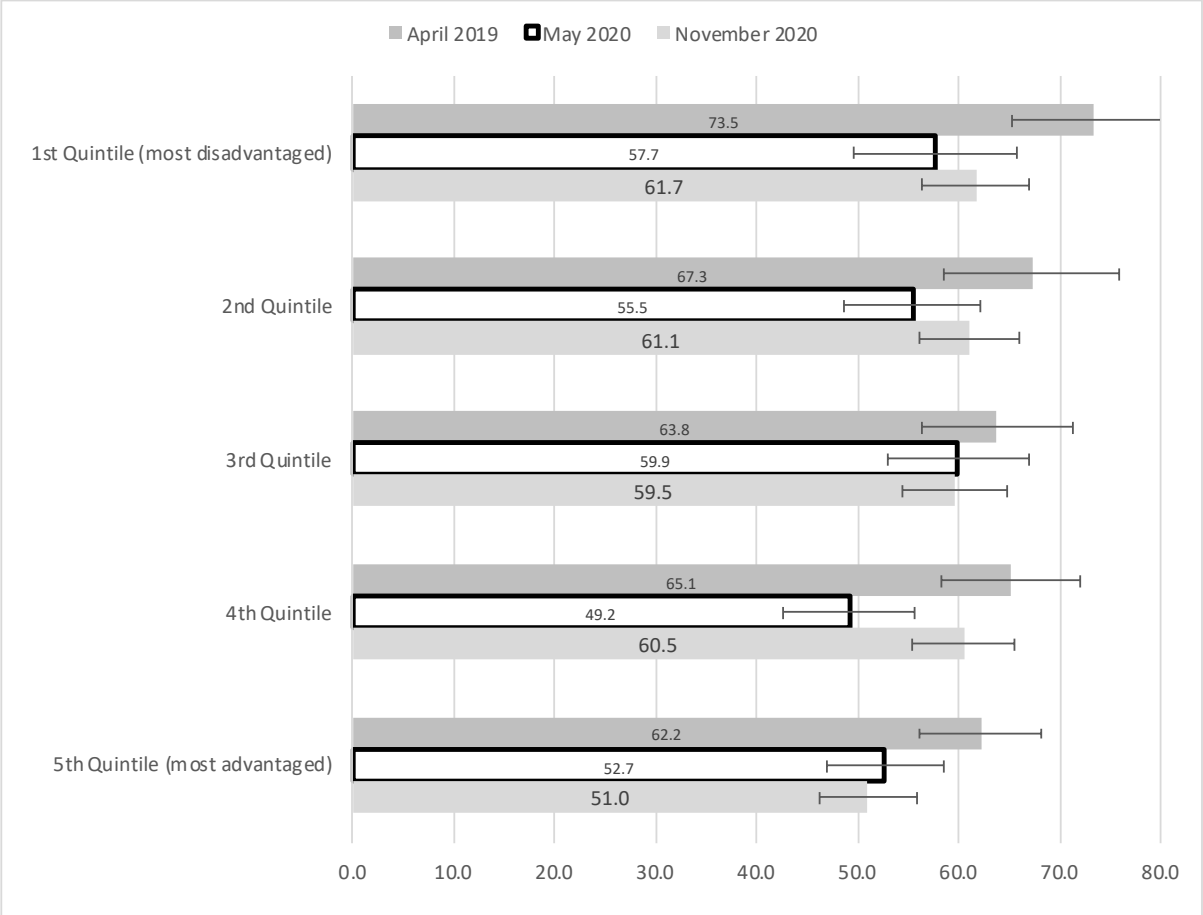


Notes: The "whiskers" on the bars indicate the 95 per cent confidence intervals for the estimate.

Source: ANUpoll, April 2019, May 2020 and November 2020.

Another geographic variable that is highly correlated with gambling prevalence is the average socioeconomic characteristics of the area in which a person lives (as measured by the Socioeconomic Indexes for Areas (SEIFA) Advantage/Disadvantage measure). Prior to the spread of COVID-19, those who lived in the most disadvantaged parts of the country were more likely to have gambled than those who lived in the middle or the upper part of the distribution (Figure 3). Between April 2019 and May 2020, however, there was significant convergence with the largest decline occurring for those in the most disadvantaged areas (15.7 percentage points, from 73.5 per cent to 57.7 per cent). What is perhaps most interesting though is that by November 2020 it was only those respondents who lived in the most and the least disadvantaged areas that still had lower rates of gambling participation than prior to the spread of COVID-19.

Figure 3 Gambling prevalence by Socioeconomic characteristics of area – April 2019, May 2020 and November 2020



Notes: The "whiskers" on the bars indicate the 95 per cent confidence intervals for the estimate.

Source: ANUpoll, April 2019, May 2020 and November 2020.

2.1 Changes by gambling type

One of the potential limiting factors for gambling during the COVID-19 period was access to venues and the cessation of activities that people placed bets on. It is not surprising then, as shown in Table 1, that certain types of gambling decreased by more than others over the period. The biggest relative decline in gambling prevalence between April 2019 and May 2020 was for informal games (like cards, mah-jong or snooker), which declined from 2.0 per cent of the population to 0.8 per cent. Other forms of gambling that more than halved were bingo or housie (2.8 to 1.2 per cent) and table games (from 5.1 to 2.4 per cent). The smallest decline was for pokie or other casino games online, which declined from 1.3 to 1.2 per cent, and there was no form of gambling that increased between April 2019 and May 2020.

From a policy perspective, what is perhaps of greatest interest is the absolute decline in gambling, or the form of gambling where the greatest number of people stopped during the COVID-19 pandemic. Using a population estimate of around 19.8 million adults, roughly 2.6 million fewer Australians gambled in the 12 months leading up to May 2020 than would have done if the April 2019 gambling prevalence levels continued into the COVID-19 pandemic (10.4 million compared to 13.0 million). We estimate that there were 2.7 million fewer adult Australians who bought raffle tickets, 1.7 million fewer adults who played a lottery game and

1.6 million fewer adults who played poker machines or gaming machines at a venue.

Between May and November 2020, eight of the eleven forms of gambling increased, with the greatest increase being for horse or greyhound races. For this form of gambling, as well as lottery games like Tattslotto or Powerball, rates of gambling were now close to what they were pre-COVID.

Table 1 Gambling prevalence by type of gambling – April 2019, May 2020 and November 2020

Type of gambling	April 2019	May 2020	November 2020
Played poker machines or gaming machines at a venue	17.4	9.3	9.6
Bet on horse or greyhound races, excluding sweeps	14.3	8.5	13.4
Bought instant scratch tickets	18.9	14.8	16.4
Played a lottery game like Tattslotto or Powerball	46.4	37.8	42.1
Played Keno	7.4	4.3	5.0
Played table games such as blackjack, poker, or roulette at a casino	5.1	2.4	1.8
Played bingo or housie	2.8	1.2	1.2
Bet on a sporting or special event like football, cricket, tennis, a TV show, or election	7.1	4.1	5.2
Played informal games like cards, mah-jong, or snooker for money	2.0	0.8	0.9
Bought raffle tickets	33.1	19.4	20.9
Played pokie games or other casino games online for money	1.3	1.2	0.6
Any form of gambling for money	65.9	52.9	58.7

Notes: The estimated standard errors for these estimates are available in Appendix Table 1.

Source: ANUpoll, April 2019, May 2020 and November 2020.

3 Attitudes towards gambling

Whether or not the decline in gambling documented in the previous section represents a negative consequence for Australia of the COVID-19 pandemic or an unintended blessing depends a lot on the consequences that gambling has on individuals (as will be discussed in subsequent sections), as well as the general attitudes that Australians have towards gambling. In April 2019 we asked respondents to the ANUpoll a range of questions regarding their views on gambling. These were based on eight items from the Attitudes to Gambling Scale (Orford et al. 2009) which has been validated in an Australian context on a sample of 1,794 adults (Donaldson et al. 2016).

The reduced set of questions consists of four items that were in support of gambling and four items that were against, with respondents directed to state whether they strongly agree, agree, disagree, or strongly disagree. Figure 4 gives the per cent of Australians who were estimated to agree or strongly agree with the statements, with those items that were framed as being supportive of gambling in grey, and those framed as being against gambling represented via the hollow bars.

The views summarised in Figure 4 show a somewhat negative, but still quite nuanced view towards gambling in Australia. On the one hand, the three statements that have the highest level of agreement are those that are moderately negative towards gambling (there are too many opportunities, it is dangerous for family life, and it should be discouraged) and the three statements with the lowest support are the strong positive statements (gambling is good for society, gambling livens up life, most people gamble sensibly). On the other hand though,

people do not appear to support the view that gambling should be banned entirely. Only 36.5 per cent of respondents support the view that gambling should be banned altogether and more than half of the population (56.8 per cent) agree with the view that people should have a right to gamble whenever they want.

On balance, it would appear that Australians think that gambling should be allowed in Australia, but that lower levels of gambling are preferable and high rates of gambling can lead to significant harm.

Figure 4 Agreement with regards to statements on gambling – April 2019

Notes: The "whiskers" on the bars indicate the 95 per cent confidence intervals for the estimate.

Source: ANUpoll, April 2019

4 Problem gambling

Rates of gambling declined significantly between April 2019 and May 2020, and then increased again by November 2020, though to levels below the pre-COVID baseline. Given the views towards gambling presented in the previous section, we can assume that many people would see this as a positive consequence of the pandemic, albeit one that probably does not make up for the large economic and health costs. In this section, we show that problems related to gambling have also gone down since April 2019 and, importantly, this decline has still occurred for those who gambled over the period.

Specifically, in April 2019 and in November 2020 we asked nine questions from the Problem Gambling Severity Index or PGSI, an extensively validated tool to screen for problem gambling in both survey and clerical contexts (Holtgraves 2009; and Currie et al. 2013). The list of questions are given in Figure 5 below, and respondents who reported at least one of the gambling problems at least some of the time are labelled as 'at risk' gamblers. In April 2019,

13.6 per cent of Australian adults were estimated to be at risk of problem gambling. By November 2020, this had declined to 10.3 per cent, with this difference statistically significant at the 5 per cent level of significance.

Perhaps even more importantly, when we restrict our denominator to anyone who gambled in the previous 12 months, there was still a decline in at risk gambling over the period. Of those who gambled in the 12 months leading up to April 2019, 20.7 per cent were identified as being at risk. Of those who gambled in the 12 months leading up to November 2020, however, only 17.5 per cent of the sample were identified as being at risk. It is not just that gambling levels have declined during the COVID-19 period. At risk gambling also appears to have declined for those who continued to gamble.

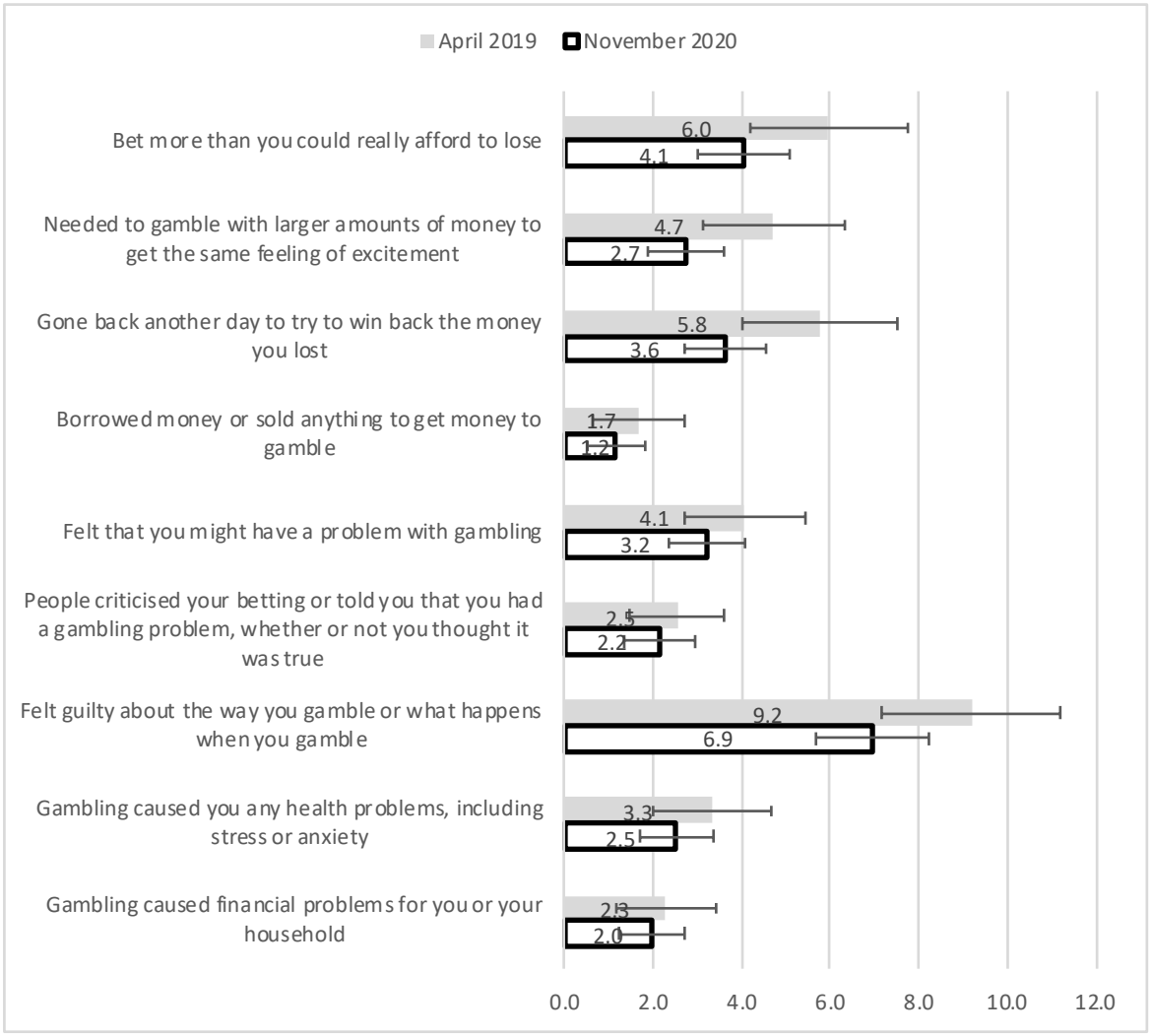
The PGSI further classifies those who are at-risk of problem gambling into three categories based on the summation of the responses to each of the nine questions. A value of 1 is ascribed to those who reported 'sometimes' to that particular question, 2 for those who reported 'most of the time' and 3 for those who reported 'almost always.' Summing across the nine questions, those with a score of 1 to 2 are identified as being low risk, those with a value of 3 to 7 are reported as being of moderate risk, and those with a score of 8 to 27 (the maximum value) are identified as being problem gamblers, or sometimes as high risk gamblers.

In April 2019, 7.3 per cent of Australians were estimated to be low risk, 4.8 per cent were estimated to be moderate risk, and 1.5 per cent were estimated to be high risk or problem gamblers. When we restrict our denominator to those who gambled, these increase to 11.2 per cent, 7.3 per cent and 2.3 per cent of gamblers respectively.

The largest decline between April 2019 and November 2020 appears to be amongst the moderate risk group, those all three at risk categories declined over the period – to 6.7 per cent for low risk gamblers, 2.4 per cent for moderate risk gamblers and 1.2 per cent for problem or high risk gamblers. When we restrict the percentages to those who gambled in the 12 months leading up to the November survey, there is a steady level of low risk gambling (11.4 per cent in November 2020), but declines in moderate risk gambling (4.0 per cent of gamblers) and high risk or problem gambling (2.1 per cent of gamblers).

There were somewhat different rates of decline for the individual items within the PGSI (Figure 5), though all were lower in November 2020 (albeit with some overlap in confidence intervals). The largest relative declines were for 'Needed to gamble with larger amounts of money to get the same feeling of excitement', which declined from 4.7 per cent to 2.7 per cent and for 'Gone back another day to try to win back the money you lost', which declined from 5.8 per cent to 3.6 per cent.

Figure 5 Reported individual PGSI items at least some of the time – April 2019 and November 2020



Notes: The "whiskers" on the bars indicate the 95 per cent confidence intervals for the estimate.

Source: ANUpoll, April 2019 and November 2020

Using PGSI as a count variable and modelling via a negative binomial regression, there are a number of factors that were associated with gambling risk in November 2020 (Table 2). In Model 1 we do not control for prior gambling risk, which allows us to look at the cross-sectional determinants of gambling risk on the full sample. In Model 2, we control for gambling risk in April 2019, thereby allowing us to look at change in risk through time. Specifically, females had lower risk levels than males, as did those outside of the middle age category and particularly those aged 55 years and over (cf. 35 to 44 years). Those who spoke a language other than English had higher risk, whereas there was a very strong correlation with education (those who hadn't completed Year 12 having a higher risk than those who had, those with a post-school qualification than those without). Area also mattered, with those in relatively advantaged areas and outside of capital cities having a lower risk.

There were far fewer variables that were significant when controlling for PGSI in April 2019, suggesting that the patterns of gambling risk had not changed. Two exceptions were females, who experienced a greater decline in gambling risk than males, and education, with the relatively highly educated experiencing a greater decline in risk relative to those with low levels

of education.

In the third model presented in Table 2, we include two additional variables capturing behavioural factors potentially related to gambling risk. Specifically, we replicated questions from the Global Preferences Survey or GPS[2] on risk and time preference. Collected in April 2019 and standardised to have a mean of zero and a standard deviation of one, higher values indicate a greater patience for financial gain into the future rather than the presence, and a greater willingness to take risk. The results presented in Model 3 of Table 2 show that those who were more patient about financial rewards prior to the spread of COVID-19 experienced a smaller reduction in gambling risk between April 2019 and November 2020 than those who were less patient. From a policy perspective, this gives some indication that the pandemic has reduced gambling risk for some more than others, and that interventions to reduce gambling risk during the pandemic could target more short-term costs of gambling or utilise mechanisms that mitigate high discounting rates (like pre-commitment devices).

Table 2 Factors associated with gambling risk levels – November 2020

	Model 1		Model 2		Model 3	
	Coeff.	Signif.	Coeff.	Signif.	Coeff.	Signif.
PGSI in April 2019			0.595	***	0.588	***
Patience with regards to financial rewards in April 2019					-0.323	***
Willingness to take financial risk in April 2019					-0.040	
Female	-0.783	***	-0.655	***	-0.703	***
Aged 18 to 24 years	-0.294		-0.710		-0.820	
Aged 25 to 34 years	-0.243		0.120		0.002	
Aged 45 to 54 years	-0.500	*	-0.439		-0.469	
Aged 55 to 64 years	-0.766	***	-0.287		-0.360	
Aged 65 to 74 years	-0.991	***	-0.487		-0.429	
Aged 75 years plus	-1.661	***	-0.705		-0.786	
Indigenous	0.093		-0.169		-0.307	
Born overseas in a main English speaking country	-0.402		-0.612		-0.683	*
Born overseas in a non-English speaking country	-0.128		-0.303		-0.383	
Speaks a language other than English at home	0.895	***	0.474		0.464	
Has not completed Year 12 or post-school qualification	1.009	***	0.558	*	0.518	*
Has a post graduate degree	-1.624	***	-1.055	*	-0.962	
Has an undergraduate degree	-0.161		0.553		0.681	*
Has a Certificate III/IV, Diploma or Associate Degree	-0.297		0.141		0.180	
Lives in the most disadvantaged areas (1st quintile)	-0.102		0.014		0.091	
Lives in next most disadvantaged areas (2nd quintile)	-0.069		-0.491		-0.522	
Lives in next most advantaged areas (4th quintile)	-0.425	*	0.184		0.228	
Lives in the most advantaged areas (5th quintile)	-0.980	***	0.010		0.123	
Lives in a non-capital city	-0.452	**	0.097		0.096	
Constant	-0.177		-2.339	***	-2.363	***
Sample size	2,910		1,650		1,624	

Source: ANUpoll, January, April, May, August, October, and November 2020.

Notes: Negative binomial regression model. The base case individual is female; aged 35 to 44; non-Indigenous; born in Australia; does not speak a language other than English at home; has completed Year 12 but does not have a post-graduate degree; lives in neither an advantaged or disadvantaged suburb (third quintile); and lives in a capital city. Coefficients that are statistically significant at the 1 per cent level of significance are labelled ***; those significant at the 5 per cent level of significance are labelled **, and those significant at the 10 per cent level of significance are labelled *.

5 Gambling and wellbeing

The risks presented in Figure 5 and summarised by the PGSI are towards the extreme end of the impacts of gambling on the individual and their family. However, the distribution in attitudes presented in Figure 4 suggest that although people in Australia recognise that although there are harms from gambling, that some people do gain some benefits and that gambling shouldn't be banned completely. So, in addition to the potential benefits of reduced gambling during the COVID period, there are likely to have been some costs for those who enjoy gambling but do not experience the problems presented earlier. Overall, Biddle et al. (2020) has shown that life satisfaction in November 2020 was now slightly above life satisfaction in January 2020 and slightly below satisfaction in October 2019. To explore how changes in gambling may have related to changes in wellbeing over the period, in this section we relate changes in life satisfaction over the period to changes in gambling behaviour and problems.

Specifically, in Table 3 we model life satisfaction in November 2020 (on a scale of 0 to 10) using a negative binomial regression, controlling for life satisfaction in January 2020, prior to the COVID-19 pandemic. In the first model, we include two main explanatory variables – whether the person gambled at all in the 12 months leading up to November 2020 and whether they were identified as being an 'at risk' gambler based on a positive response to at least one of the PGSI questions. In Model 2, we also control for a range of demographic, socioeconomic and geographic factors that are associated with gambling and gambling harm.

Because we are controlling for life satisfaction prior to the pandemic, our model is capturing the correlation between life satisfaction prior to the pandemic and gambling behaviour during the pandemic. With this in mind, the results presented in Table 3 show that those who gambled at all during the pandemic had a more positive change in life satisfaction than those who did not. This result held whether we did or did not control for other characteristics, though the size of the coefficient and p-value were smaller when we did. We did find, however, that those who experienced gambling problems in the 12 months leading up to the survey had a more negative change in life satisfaction. Once again, this result holds when we control for other characteristics of the individual.[3]

Table 3 Relationship between gambling and gambling risk levels and life satisfaction – November 2020

	Model 1		Model 3	
	Coeff.	Signif.	Coeff.	Signif.
January life satisfaction	0.089	***	0.087	***
Gambled in 12 months leading up to November 2020	0.025	**	0.019	*
Reported at-risk gambling behaviour in 12 months leading up to November 2020	-0.056	**	-0.033	*
Female			0.017	*
Aged 18 to 24 years			-0.046	
Aged 25 to 34 years			0.016	
Aged 45 to 54 years			-0.003	
Aged 55 to 64 years			0.034	**
Aged 65 to 74 years			0.080	***
Aged 75 years plus			0.090	***
Indigenous			-0.004	
Born overseas in a main English speaking country			-0.001	
Born overseas in a non-English speaking country			-0.019	
Speaks a language other than English at home			0.035	*
Has not completed Year 12 or post-school qualification			-0.003	
Has a post graduate degree			0.024	
Has an undergraduate degree			0.029	*
Has a Certificate III/IV, Diploma or Associate Degree			0.008	
Lives in the most disadvantaged areas (1st quintile)			0.022	
Lives in next most disadvantaged areas (2nd quintile)			0.018	
Lives in next most advantaged areas (4th quintile)			0.019	
Lives in the most advantaged areas (5th quintile)			0.026	
Lives in a non-capital city			0.005	
Constant	1.301	***	1.255	***
Sample size	2,760		2,658	

Source: ANUpoll, January, April, May, August, October, and November 2020.

Notes: Negative binomial regression model. The base case individual did not gamble in November 2020. In addition, the base case individual is female; aged 35 to 44; non-Indigenous; born in Australia; does not speak a language other than English at home; has completed Year 12 but does not have a post-graduate degree; lives in neither an advantaged or disadvantaged suburb (third quintile); and lives in a capital city. Coefficients that are statistically significant at the 1 per cent level of significance are labelled ***; those significant at the 5 per cent level of significance are labelled **, and those significant at the 10 per cent level of significance are labelled *.

6 Concluding comments

Australia has one of the highest rates of gambling losses in the world.[4] The spread of COVID-19 led to dramatic changes in many aspects of people's lives in Australia, with this paper showing that levels of gambling declined significantly and substantially between April 2019 and May 2020 around the height of COVID-19 restrictions, and then increased again between May and November 2020 when restrictions began to be eased. Gambling rates in November 2020 were still, however, significantly below those observed prior to the pandemic. Furthermore, there was a decline in problem gambling not only for the entire population, but also within the population who continued to gamble over the period.

Declines in opportunities to gamble without any problems appear to have led to a reduction in life satisfaction over the period. However, reductions in gambling problems appear to have counterbalanced these effects somewhat. If it were possible to have reduced the gambling

harm over the period without having had to reduce opportunities for less problematic gambling, then the net effect would have been likely to have been improved overall life satisfaction.

Looking further forward, the COVID-19 pandemic has created an opportunity to reset a range of behaviours that had become habitual for some and were causing them real harm. There is a small window to take advantage of these changes in problem gambling and make sure that old habits aren't picked up again, and an ongoing need to identify those who may have commenced problem gambling during the period and intervene before those behaviours become entrenched.

Appendix 1 Additional tables

Table A1 Standard errors for gambling prevalence by type of gambling – April 2019, May 2020 and November 2020

Type of gambling	April 2019	May 2020	November 2020
Played poker machines or gaming machines at a venue	1.31	0.66	0.68
Bet on horse or greyhound races, excluding sweeps	1.18	0.60	0.78
Bought instant scratch tickets	1.28	0.80	0.87
Played a lottery game like Tattslotto or Powerball	1.70	1.10	1.15
Played Keno	0.85	0.44	0.47
Played table games such as blackjack, poker, or roulette at a casino	0.79	0.41	0.36
Played bingo or housie	0.46	0.22	0.22
Bet on a sporting or special event like football, cricket, tennis, a TV show, or election	0.89	0.50	0.55
Played informal games like cards, mah-jong, or snooker for money	0.62	0.19	0.24
Bought raffle tickets	1.55	0.86	0.91
Played pokie games or other casino games online for money	0.45	0.27	0.15
Any form of gambling for money	1.66	1.17	1.17

Notes: The estimated standard errors for these estimates are available in Appendix Table 1.

Source: ANUpoll, April 2019, May 2020 and November 2020.

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Endnotes

[1] Of those who completed the May 2020 wave of data collection, 1,773 individuals (54.6 per cent) also completed the April 2020 ANUpoll (the 26th wave of data collection) when gambling prevalence was last asked.

[2] https://www.briq-institute.org/global-preferences/home)

[3] The results also hold when we model the dependent variable using a linear regression model or an ordered probit model, albeit with slightly different p-values.

[4] https://www.economist.com/graphic-detail/2017/02/09/the-worlds-biggest-gamblers