

Extent of, and children and young people's exposure to, gambling advertising in sport and non-sport TV

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Enquiries

Rosa Billi +61 3 9452 2625

rosa.billi@responsiblegambling.vic.gov.au

Victorian Responsible Gambling Foundation

Level 6, 14–20 Blackwood Street

North Melbourne

Victoria 3051

PO Box 2156

Royal Melbourne Hospital

Victoria 3050

Telephone: +61 3 9452 2600

Facsimile: +61 3 9452 2660

ABN: 72 253 301 291

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Extent of, and children and young people's exposure to, gambling advertising in sport and non-sport TV

Professor Kerry O'Brien
Dr Muhammad Iqbal

Behavioural Sciences Research Laboratory
Faculty of Arts
Monash University

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MONASH University



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Executive summary

Background

- Gambling and problem gambling are associated with a range of economic, social, and psychological harms in Australia and elsewhere, with the estimated social costs to Victoria alone approaching \$7 billion per annum. Along with availability and access of gambling platforms and venues, gambling advertising and sponsorship is posited as a key driver of gambling attitudes, intentions, behaviour, and problem gambling.
- This project provides the first evidence for Australia and internationally on the extent of gambling advertising in sport vs. non-sport TV. It also provides the first evidence on the extent of children (0-11 years), adolescents (12-17 years) and young people's (18-24 years) exposure to gambling advertising when watching different TV programs (e.g., sports vs. sitcoms) at different times of the day.
- For the first time, the effectiveness of the current TV advertising regulatory code in achieving their intended purpose of protecting children and young people from exposure to gambling advertising when watching free-to-air sport and non- sport TV.
- Finally, the research established whether regulatory changes to the *Commercial Television Industry Code of Practice* (*The Code*; changes implemented 1 December 2015) have resulted in more or less gambling advertising in free-to air TV, and more or less exposure of children and young people to gambling advertising when watching TV.

Key findings

- There were 136,918 gambling adverts on Australian commercial free-to-air TV in 2016, an average of 374 adverts per day. This is approximately five times the number of alcohol adverts found on free-to-air TV over a 12-month period in previous research.
- The majority (66%) of gambling adverts in 2016 were during the daytime (6am-8.29pm) when large numbers of children and young people were known to be watching TV. And the majority of advertising (86%) was in non-sport TV.
- Estimates of exposure to gambling advertising (number of adverts presented x number of audience viewers), showed that in 2016 children (0-11 years) received the most exposures to gambling and betting advertising when watching TV, followed by adults (18-24 years), and adolescents (12-17 years).
- *The Code* is not achieving its intended purpose of protecting children and adolescents (0-17 years) from exposure to gambling advertising on free-to-air TV.
- The change to the regulations in *The Code* introduced on the 1st December 2015, have resulted in a significant increase (55%) in the number of gambling advertising on free-to-air TV, and a significant increase in children and young people's exposure to gambling advertising when watching free-to-air TV in the five metropolitan regions (Adelaide, Brisbane, Melbourne, Perth, Sydney). The percentage increase in gambling advertising was greater in sport TV (71%), than in non-sport TV (51%).

- The increase in the number of gambling adverts does not appear to be due to yearly variation, as increases in gambling adverts and exposures appear directly related to the specific changes to *The Code* (e.g., times of day gambling now allowed, program classification changes *PG*). For example, the change in *The Code* allowing gambling advertising at 7pm rather than 7.30pm, resulted in a 52% increase in gambling adverts during that half hour (7pm-7.30pm) for all programming. However, the increase in gambling adverts within this half hour change was considerably greater in sport programming (116% increase) than in non-sport TV programming (45% increase).
- The increase in children and young people's exposure to gambling adverts is also not due to increased audience numbers, as absolute audience numbers declined slightly (17%) for the 12 months after *The Code* change. The change in *The Code* allowing *PG* rated programming at any time of the day saw gambling advertising increase 109% (note: *The Code* allows gambling advertising in *PG* programs).
- An examination of gambling advertising in different sports found that the AFL had the greatest number of gambling or betting adverts (8,866) in 2016, followed by NRL (4534), Cricket (1888), Horse Racing (1571), Motor Racing (1372), and Tennis (1301). Children and young people's exposure to gambling advertising was greatest when watching the AFL, NRL, Cricket, and Tennis.
- An examination of gender differences in exposures to gambling advertising found that males received more exposures to gambling advertising when watching sport TV than females. However, this difference was not substantial with females regularly exposed to large amounts of gambling advertising when watching sport TV.
- Accounting for absolute programming time for sport vs. non-sport TV, there was on average four times more gambling adverts per hour in sport TV vs non-sport TV in 2016. Because of this increased density of gambling advertising in sport TV, children and young people receive considerably more exposure to gambling advertising when watching sport TV, particularly in the most viewed sports in Australia (AFL, NRL, Cricket, Tennis).

Conclusions

- Current regulations (*The Code*) designed to protect children and young people from exposure to gambling advertising when watching free-to-air sport and non-sport TV, are not effective in protecting children and young people from exposure to gambling advertising when watching free-to-air TV.
- Changes to *The Code* introduced the 1st of December 2015 further weakened *The Code*, and are responsible for a 55% increase in gambling advertising during times, and in programs, that large numbers of children and young people are known to be watching. This has resulted in a concomitant increase in children and young people's exposure to gambling advertising when watching free-to-air TV.
- The analysis of the extent of gambling advertising and children and young people's estimated exposures for the 12 months prior (1 December 2014 to 1 December 2015) to the implementation of new regulatory changes to *The Code*, showed that the previous regulations in *The Code* were also not effective in protecting children and young people.

- Gambling companies placed significantly larger numbers of gambling advertisements per hour in sport TV compared to non-sport TV, which is responsible for a greater level of exposure to children and young people, who watch these sports in very large numbers.
- The results show that a ban on gambling advertising during all sport TV programming, and preventing gambling advertising before 8.30pm, would more than halve children and young people's exposure to gambling advertising when watching free-to-air TV in Australia.
- Given research showing an association between exposure to gambling advertising and gambling attitudes/beliefs, gambling behavior and problem gambling, current advertising regulations (*The Code*) may be responsible for an increase in gambling-related harms and problem gambling in Victoria and Australia. Policy makers should bring about changes to *The Code* so that they can achieve their intended goal of effectively protecting children and young people from excessive exposure to gambling advertising when watching TV.

Background

Problem gambling is characterised by persistent and recurrent maladaptive behaviour that disrupts personal, family or vocational pursuits (American Psychiatric Association, 2013) and is associated with significant health and psychosocial problems (Abbot, 2013; Canale, Vieno and Griffiths, 2016; Meyer, Hayes and Griffiths, 2009). Population level studies seeking to estimate the prevalence of problem gambling suggest that anywhere between 0.12% and 5.8% of the world's population are problem gamblers (Brodbeck, Duerrenberger and Znoj, 2009). Although much of the focus on gambling has been on problem gambling, research suggests that gambling-related harms (e.g., economic hardship, family and legal problems), are not restricted to people categorised as problem gamblers, these harms are also distributed across gamblers identified as being at only low or moderate levels of risk (Canale, Vieno and Griffiths, 2016).



In Australia, gambling is a prevalent and normalised social activity (Pitt et al., 2016), with an annual participation rate of 64% (Armstrong and Carroll, 2017). Recent research by the Australian Institute of Family Studies found that 6.8 million, or 39% of all Australian adults were regular gamblers, gambling at least once a month. This gambling activity equated to an annual estimated expenditure of \$8.6 billion by Australians. By per capita, Australian adults are the world's largest spenders on gambling, around double that of the average of other western countries (Armstrong and Carroll, 2017). Specifically, Australian adults on average spend over \$1250 each per year on gambling. With such high participation rates and associated expenditures, it is inevitable that we might see higher levels of gambling-related problems in Australia across time.

The extent of gambling-related problems in Australia is pronounced, with one recent study showing that an estimated 7.9% or 1.39 million Australian adults experienced one or more gambling related problems in 2015 alone (Armstrong and Carroll, 2017). Other research paints a similar picture, with between 5-12% of Australians expected to experience at least one gambling-related problem per year (Dowling et al., 2015; Hing et al., 2014). And rates of problem gambling appear to be higher in 'interactive gamblers' who gamble via the internet using computers, mobile telephones, tablets, interactive televisions (Gainsbury et al., 2012). Similarly, a study of over 15,000 Australian adults found that problem gambling rates were three times higher among interactive gamblers than non-interactive gamblers (Gainsbury et al., 2014). Although these findings are likely sound, it is unlikely that those who are identified as problem 'interactive gamblers' would not also exploit other opportunities to gamble, with access and convenience likely the key factor in choice of gambling platform/mode.

Although there is a lack of international research on the social costs of problem gambling, research from one state in Australia (Victoria) suggests that gambling incurs significant social costs to society (Browne et al., 2017). In Victoria (population ≈ 6 million), around \$7 billion a year is lost on gambling-related social harms through increased mental health service use, family and relationship problems, loss of productivity, and legal costs (Browne et al., 2017). Of concern, expenditure on sports-related betting appears to be on the rise in many countries including Australia and will lead to higher numbers of young people becoming problem gamblers, and results in considerably larger social costs and other burdens to society (Hickman and Bennett, 2016).

Extent of gambling advertising

Media audiences across the world are exposed to an increasing number of gambling adverts and sponsorship messages (Hing, Russell and Browne, 2017). A United Kingdom Office of Communications report (Ofcom, 2013) on the extent of gambling advertising in the United Kingdom (UK) reported that 4% of all television advertisements were gambling-related. The report also found a significant increase in the amount of gambling advertising on television over time. Total gambling advertisements shown on UK television increased from 152,000 in 2006 to 537,000 in 2008, with 1.39 million gambling adverts in 2012 (Ofcom, 2013). A primary concern with the rapid increase in gambling advertising and sponsorship is with the impact of such extensive exposure to gambling-related messages on children and young people's gambling attitudes and behavior, with suggestions that in the very least such environmental exposure normalizes gambling to young people.

Gambling advertisements appear to be very common on Australian television, especially during live sporting matches. Indeed, young men from other countries who are exposed to the Australian sporting environment for the first time have reported that they feel targeted and bombarded by sports betting advertising relative to what they encounter in their home nations (Thomas, 2012). However, the proliferation of gambling advertising appears a global problem. Canadian research in young people aged 10-18 year found that over 90% of respondents recalled seeing gambling advertisements on television, billboards, or in newspapers and magazines, and 39% believed it would encourage them to gamble (Felsher and Gupta, 2004).

In Australia, gambling promotion appears heavily embedded in at least two of the dominant professional sporting codes: The National Rugby League (NRL) and Australian Football League (AFL; Milner et al., 2013). In 2011, Australian wagering operators attracted betting expenditure of AU\$36.5 million from NRL and AU\$45 million from AFL wagering (Deloitte, 2012). Problematically, the sporting industry is increasingly partnering with gambling companies to tap into lucrative revenues from sponsorship, advertising and product fees/profits (Lamont et al., 2016), with some teams having betting companies as their major sponsors, further increasing sporting fans exposure to gambling advertising content.

The appeal of gambling advertisements to children and young people lies in the way in which they portray gambling as glamorous, filled with excitement, and promoting a sense of fantasy. For example, qualitative research in 12-19 year old Australians found that children and young people thought gambling advertisements were entertaining, exciting, enjoyable and portrayed what was seen as an easy way to make money (Derevensky et al., 2010). Humour, bright and flashy colours, the use of celebrities, provocative females (often on internet gambling sites) and glamour were prominent features of commercial gambling advertisements (Derevensky et al., 2010).

Effect of exposure to gambling advertising and sponsorship

Research on the link between gambling advertising and gambling behaviour is in its infancy and is sparse relative to the body of research examining similar links for products such as alcohol and tobacco. However, there is a strong body of cross-sectional and longitudinal research demonstrating a clear and consistent association between exposure (e.g., being presented with an advertisement when watching TV) of children and young people to alcohol and tobacco advertising and sponsorship, and earlier initiation of alcohol consumption and smoking, and more hazardous alcohol consumption later in life in those already drinking (Anderson et al., 2009; Smith and Foxcroft, 2009; Hanewinkel et al., 2011; O'Brien et al., 2011; 2014). Importantly, there appears to be a dose-response effect of this advertising whereby those exposed to greater amounts of advertising have more problematic behaviour (Anderson et al., 2009; Smith and Foxcroft, 2009). Logic would suggest that the relationships observed for alcohol and tobacco will be present for gambling advertising.

Reviews of the literature on the effect of gambling advertising and sponsorship (Binde, 2007; 2014) suggests a number of plausible mechanisms whereby gambling advertising and sponsorship messages advertising may influence young people's gambling attitudes and behaviours. Although there is an absence of longitudinal studies on the effect of gambling advertising on young people's gambling attitudes and behaviour, a slowly developing body of descriptive, qualitative and quantitative cross-sectional research in this area does suggest a link between exposure to advertising and gambling attitudes, intentions, and behaviour (Deans et al., 2017). Cross-sectional research in Australian youth aged 12-19 years found an association between exposure to gambling advertising and sponsorship messages and gambling-related problems (Derevensky et al., 2010). Similarly, researchers in Israel identified a relationship between advertising exposure and problem gambling, as well as gambling behaviour in general in a sample of adolescents (Gavriel-Fried et al., 2010).



Large-scale cross-sectional research involving over 4000 young people found that after adjusting for various confounds (e.g., gender, income, personality traits, parental gambling), exposure to gambling advertising was associated with past and current gambling, and probable pathological

gambling (Clemens, 2017). More specifically, there was a dose- response relationship whereby greater exposure was strongly associated with greater odds of gambling and probable pathological gambling as assessed by the South Oaks Gambling Screen. Work in Australia suggests a similar relationship between exposure to gambling-related marketing messages and gambling attitudes and behaviours. For example, work in Australia found that gambling promotion and advertisements during sporting events had an influence on the impulsive to bet (Thomas et al., 2012). Similarly, an online survey of 131 Australian adolescents indicated that a strong predictor of sports betting intentions were more positive attitudes towards gambling sponsors and their promotions during televised (TV) sporting events (Hing et al., 2014). Hing and colleagues (2017) also found that young male internet sports betters were particularly vulnerable to gambling problems if they held positive attitudes to gambling sponsors who embed promotions into sports broadcasts.

Qualitative research (Lamont et al., 2016) has also found that young people reported feeling arousal, optimism, excitement and joy when viewing gambling advertisements during televised sport. A study on children's observations of gambling advertisements viewed during sporting matches found that children recalled, in detail, sports betting advertisements that they had seen, with humour the most engaging appeal of the gambling messages (Pitt, 2017).

Extent of advertising in sport and non-sport TV, and children and young people's exposure

There has been an apparent proliferation of gambling advertising in Australian television (TV), especially sport TV, in the past 10 years. There is, however, no research in Australia or internationally that has systematically examined the full extent/volume (i.e., frequency, time on screen, expenditure, time of day, and program type/genre) of gambling and betting advertising and sponsorship messages in sport vs. non-sport TV for a complete year (Binde, 2014; Planzer and Wardle, 2011). Similarly, there is no research that has estimated the extent of children (0-11 years) adolescent (12-17 years) and young people's (18-24 years) exposure to gambling and betting-related advertising and sponsorship messages when watching different TV programs (e.g., sports vs. sitcoms) at different times of the day. Given emerging evidence from gambling research, and a strong evidence base from alcohol and tobacco, of an association between exposure to advertising and sponsorship and subsequent attitudes and behaviours, it is important to better understand the gambling advertising and sponsorship environment.

Work of this nature has been conducted for alcohol advertising, and that research demonstrated that children and young people are regularly exposed to alcohol advertising during their peak viewing times, and particularly during sport programming (O'Brien et al., 2015; Carr, O'Brien et al., 2016). Indeed, taking into consideration programming hours for sport vs non-sport programs, there was four alcohol adverts in sport TV for every one advert in non-sport TV (O'Brien et al., 2015; Carr, O'Brien et al., 2016).

Recent reviews of the gambling literature have highlighted the absence of empirical evidence examining the effectiveness of formal regulations related to gambling and betting promotional activities (Binde, 2013; Binde, 2014; Planzer and Wardle, 2011). There have been calls for research that examines the effect of any changes to gambling-related regulations when they occur (Rossow and Hansen, 2016). The present study addresses this gap in the gambling evidence base by providing important empirical evidence on the extent of gambling advertising and sponsorship in different sports (e.g., AFL, Cricket, NRL, Racing) and compared with non-sport programming on Australian free-to-air TV.



Importantly, the present research examines the effectiveness of the new/current Commercial Television Industry Code of Practice (*The Code*) which was made effective on 1 December 2015. Despite the proliferation on gambling advertising in sport TV in recent years, and submissions recommending stronger restrictions (FCA, 2015, VRGF, 2015, Livingstone, 2015), *The Code* appears to have been weakened in a number of ways that will likely result in greater exposure of children and young people to gambling and betting advertising and sponsorship. For example, *The Code* now allows PG rated programming at any time of the day, providing an additional 5.5 hours a day in which gambling advertising can be placed (PG rated programs are now allowed to carry gambling and betting advertising and sponsorship messages). A simple increase in PG programming during the day, and/or program re-classification from G, P, C, (approved child rating) to PG, could result in greater exposure of children and young people. Similarly, according to the revised regulations in *The Code*, gambling and betting advertising is now allowed in children's rated programs (G, P, C) after 7pm, rather than the later time 7.30pm under the pre-December 2015 regulations. This allows for another 3.5 hours per week of gambling advertising during children's peak TV viewing times (6pm-9.30pm; O'Brien et al., 2015).

General aims

1. Establish the extent of gambling advertising in free-to-air sport and non-sport TV programming in the five major metropolitan regions of Australia in the daytime and nighttime, and across years encompassing changes in commercial television industry code of practice (*The Code*; implemented 1 December 2015).
2. Estimate the extent of children (0-11, 12-17 years) and young people's (18-24 years) exposure to gambling and betting advertising when watching sport and non-sport TV during the daytime and nighttime.
3. Identify the extent to which the newly revised regulations (*The Code*) protect children and young people from exposure to gambling advertising when watching sport and non-sport TV at their peak viewing times.
4. Identify which sports (e.g., AFL, NRL, Cricket, Horse Racing) have the highest amounts of gambling advertising per hour of programming time across individual sports.
5. Identify which sports expose children and young people to the most gambling and betting advertising given children and young people's known TV viewing times.
6. Which gambling and betting organizations (brands) are most represented in different sports, and are most likely to be seen by children and young people given their viewing patterns of sport and non-sport TV programming.

Methods

Data sources

Information on all gambling advertising on all free-to-air commercial television stations in the five major metropolitan areas of Australia (Melbourne, Sydney, Brisbane, Adelaide, Perth) was purchased from Ebiquity, an international media monitoring company (<http://www.ebiquity.com>). The data included the time/date, duration (seconds), program in which the advertisement was placed, and full content (i.e., video/sound/image). We did not examine subscription (pay-per-view) TV because it contains little commercial advertising and has low audience numbers relative to free-to-air TV.

Data on aggregated TV audience viewing data (i.e., time of day in 1/2 hour blocks) for all young people (age categories 0–11, 12–17, 18–24 years) in the five major metropolitan centres from Australian Television Audience Measurement (OzTAM; <http://www.oztam.com.au>), the official source of television audience measurement in Australia. We also purchased sport TV audience viewing data from OzTAM for all sport codes airing between 1 December 2014 to 31 December 2016. Additional data on TV program category (e.g., Comedy, Drama, Children and Family) was mined from YourTV and Wikipedia. We also mined Australian TV program classification data (e.g., PG, G, M) from IMDB.

Analytic strategy

Ebiquity provided the research team with login access to Ebiquity's data platform, which the research team utilised to extract all advertising data across the period 1 December 2014 to 1 January 2017. OzTam provided the research team with detailed reports (.csv data files) of known audience viewing data (e.g., audience numbers by age group, gender, time of day, program type (sport vs. non-sport), sport program type). This data then was then transposed and transformed using *R* to make the data set amenable for addressing each of the specific research aim. This also required the data to be extracted and/or reformatted so that the Ebiquity and Oztam data can be linked and integrated in order to estimate the extent of exposure.

Exposure refers to the presentation of a gambling advertisement to an individual. For example, if five gambling advertisements were presented within one hour of an AFL game, and there was known to be 50,000 young people watching TV when the advertising was presented, then that would equate to 250,000 estimated exposures to young people.

Additionally, also mined additional data related to TV program classification (e.g., G, PG, M, MA15+) and TV program category (e.g. Children and Family, News and Current Affairs, Sport, Comedy, Drama, etc.). This data was also reformatted so that it could be merged and integrated with the advertising data acquired from Ebiquity.

We used *R* and SPSS statistical packages to conduct statistical tests (e.g., χ^2 , and between-group F-tests) to establish proportional and mean differences in the extent and exposure to gambling advertising and sponsorship messages in sport vs. non-sport TV, and between different times of day, sport codes, age groups etc. We calculated the number of gambling adverts in non-sport and sport programming in different times of the day in two ways. The first is in ½ hour increments starting from 06:00am up until 23:59pm. The second is in two different periods of the day: 06:00am to 20:29pm (daytime) and 20:30pm to 23:59pm (nighttime). We calculated the number of gambling

adverts in each metropolitan region, hence forth called regions (i.e., Adelaide, Brisbane, Melbourne, Perth, and Sydney), gambling category (betting, casino, and lottery), in PG programming and children and family programming. Finally, we also calculated the number of gambling adverts in each sport code (e.g., AFL, Cricket, Horse Racing, Rugby, Soccer).

TV audience viewing numbers, also broken down into ½ hour increments starting from 06:00am up until 23:59pm, as well as for daytime and night- time periods, were also calculated. We calculated not only total TV viewing audience, but also broken down into age groups (0-11, 12-17, and 18-24 years old) and gender groups (0-17 and 18-24 year old men, 0-17 and 18-24 year old women). Because the age categories (e.g., 12-17 = 6 years vs. 18-24 = 7 years) and (for gender based analyses, 0-17 = 17 years vs. 18-24 = 7 years) vary in size, we also calculated the number of viewers for each age year within each age category by dividing audience viewing numbers by the number of years within that age category.

TV viewing audience data was also analysed by region (Adelaide, Brisbane, Melbourne, Perth, and Sydney), TV programming type (Sport vs Non-sport), and sport code (e.g., AFL, Cricket, Horse Racing, Rugby, Soccer). We also reported differences in the mean numbers of gambling messages per hour in sport and non-sport TV for different periods of the day, as well as differences in the mean numbers of gambling messages per hour of programming in select sport codes in 2015 vs. 2016. The analytical strategy outlined above provided detailed analysis and results on the general aims outlined earlier in the report. This analysis is important as it allowed us to:

- a) Determine whether the current regulation (*The Code*) is protecting children and young people from gambling advertising as intended,
- b) Establish whether recent changes to the advertising codes around gambling have increased or decreased children and young peoples estimated exposure to gambling advertising,
- c) And relatedly to a and b, examine the extent to which the subclause 6.5.2 in *The Code*, allowing gambling advertising and sponsorship in sport programming (but not non-sport programming) at any time of the day, accounts for children and young people's exposure to gambling advertising.

Results

Research Aim 1:

Establish the extent of gambling advertising in free- to-air sport and non-sport TV programming in the five major metropolitan regions of Australia in the daytime and nighttime, and across years encompassing changes in Commercial Television Industry Code of Practice (*The Code*; implemented 1 December 2015)

There were 136,918 gambling adverts that aired between 1 January 2016 and 31 December 2016 on all commercial free-to-air television channels, in the five major Australian regions (Adelaide, Brisbane, Melbourne, Perth, Sydney). In total there were 5,006 unique programs that contained gambling advertisements, out of which 4513 (90.2%) were classified as non- sport programming and 493 (9.8 %) were classified as sport programming. The majority of all gambling adverts (86.3%) were placed in non-sport programming.

Table 1.1. displays the counts of gambling adverts within the two time periods (day- time and nighttime). The highest number of gambling adverts occur in the daytime between 06:00am and 20:29pm. There are consistently more gambling adverts during the daytime than in the nighttime in the different regions. Perth had the highest number of daytime gambling adverts, followed by Sydney, Melbourne, Brisbane, and Adelaide. In the nighttime, Perth again had the highest number of gambling adverts, followed by Sydney, Brisbane, Melbourne, and Adelaide

Table 1. 1. Counts and (percentage) of gambling advertisements per time of day, per region, in 2016

Times	Adelaide	Brisbane	Melbourne	Perth	Sydney	Total
06:00-20:29	11,602 (65.70%)	16,734 (64.00%)	18,014 (65.88%)	23,180 (67.66%)	20,931 (66.43%)	90,461 (66.07%)
20:30-23:59	6,056 (34.30%)	9,412 (36.00%)	9,329 (34.12%)	11,082 (32.34%)	10,578 (33.57%)	46,457 (33.93%)

Note: The data in this table was derived by summing the number of known gambling adverts per region, per time of day, in calendar year 2016. Percentage is percentage within regions.

Figure 1. 1. shows the number of gambling advertisements per ½ hour from 06:00am to 23:59pm in sport and non-sport programming. There are more gambling adverts in each ½ hour of non-sport programming than there are in each ½ hour of sport programming. The number of gambling adverts in both sport and non-sport programming was greatest between 18:30 and 23:29pm. Figure 1.2. shows the TV viewing audiences per ½ hour between 06:00am and 23:59pm by age-group. Children between 0-11 years of age were the biggest viewing audience of the three age groups. Their viewing peaked between 07:30-09:29am and again between 17:00-21:29pm. The second largest viewing audience were young adults between the ages of 18-24, whose TV viewing peaked between 18:00-23:29pm. Children between the ages of 12-17 years had a smaller viewing audience, with TV viewing also peaking between 18:00-23:29pm.

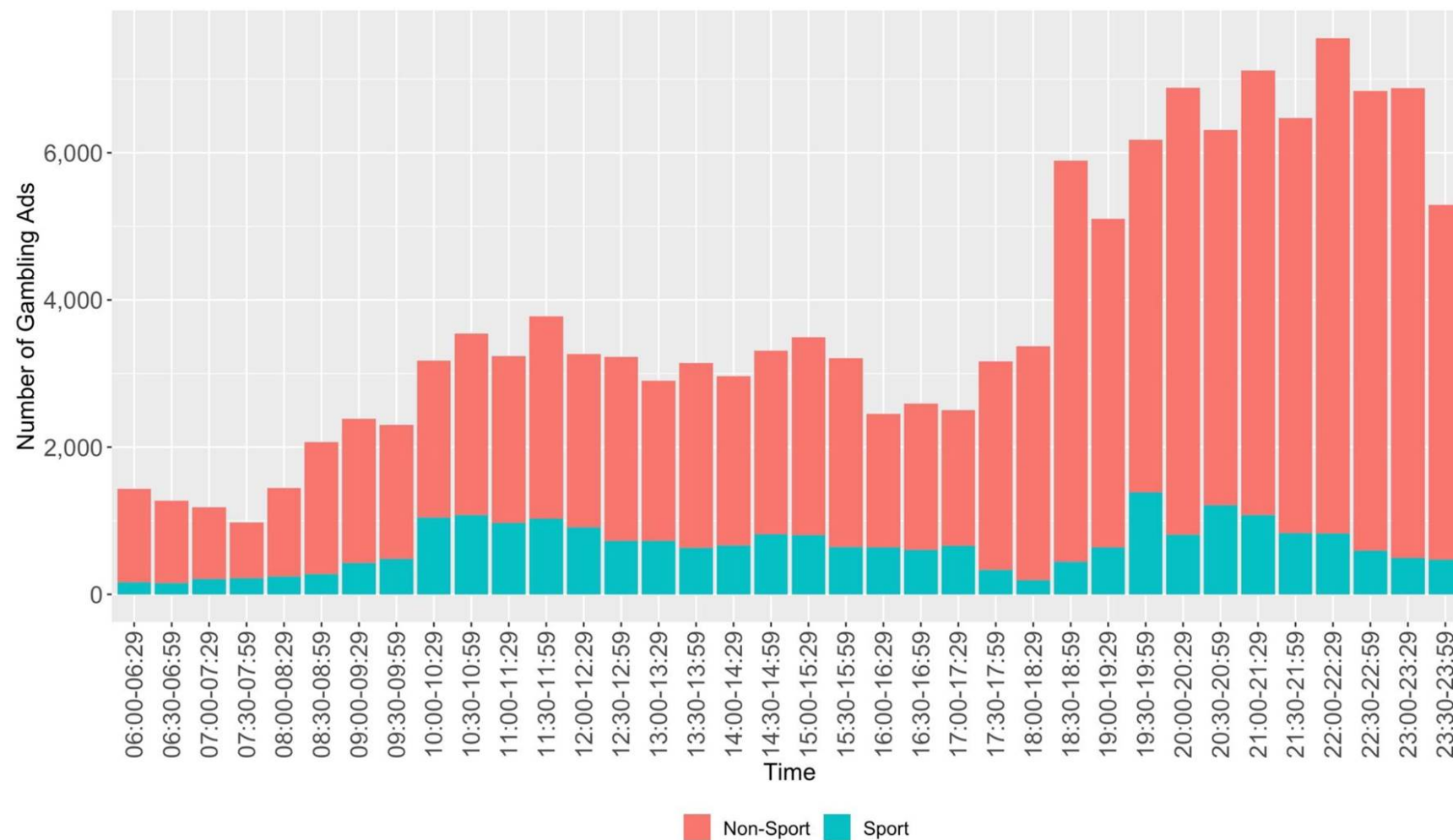


Figure 1. 1. Number of gambling adverts per ½ hour, in non-sport and sport programming, in 2016

Note: The data in this figure was derived by summing the number of known gambling adverts per ½ hour period, within sport vs non-sport programming, in 2016.

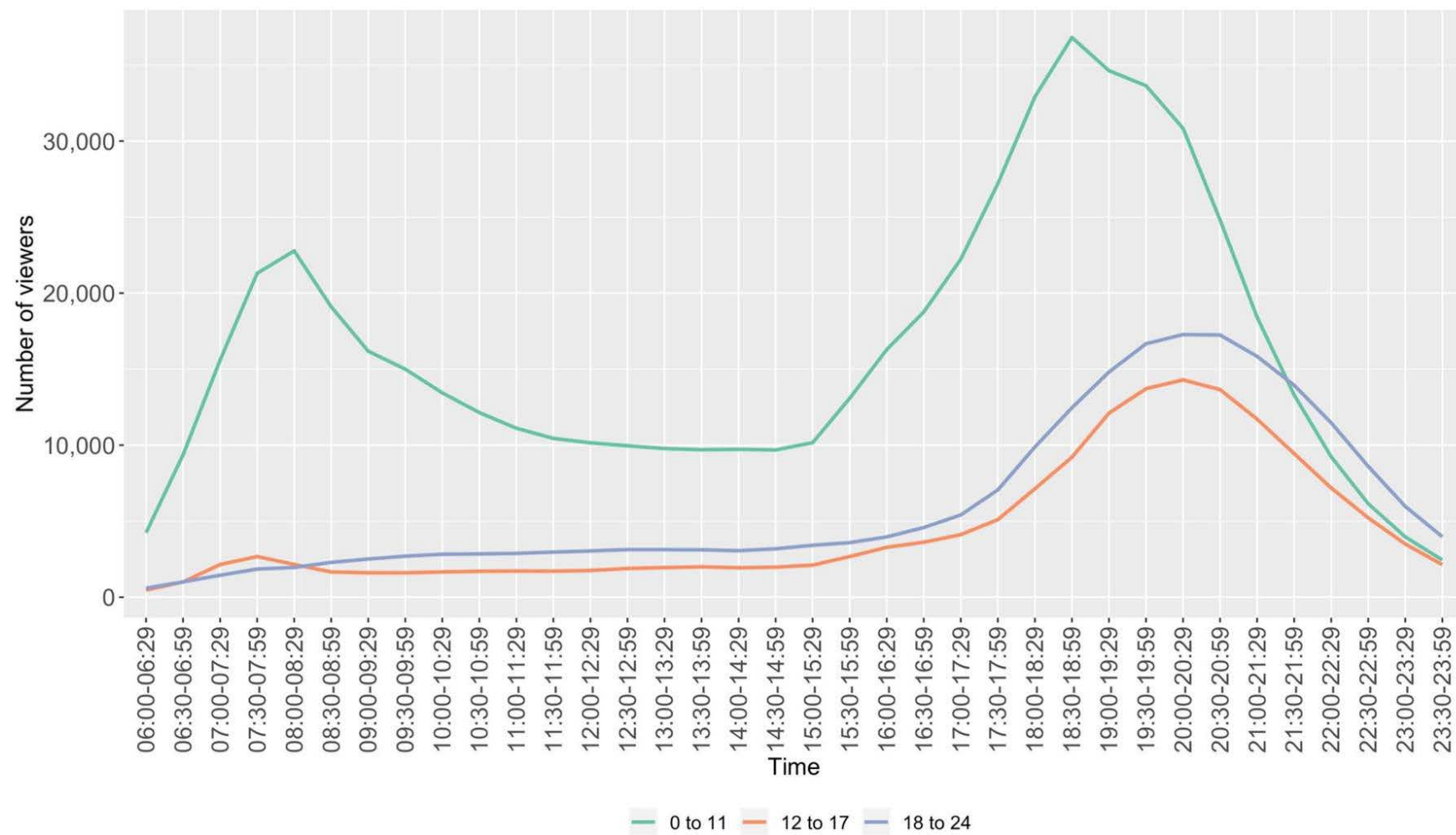


Figure 1. 2. Average number of viewers per ½ hour, per age-group, in 2016

Note: The data in this figure was derived by calculating the average of known audience per ½ hour, per age group, per channel, in 2016

Table 1.2. displays a further breaks down of the number of gambling adverts in each region into non-sport vs sport programming. The highest number of gambling advertisements for both non-sport and sport programming occur during the daytime between 06:00am and 20:29pm. Perth had the highest number of adverts within non-sport programming for both day- and nighttime, while Sydney had the highest number of gambling adverts within sport programming for both day- and nighttime.

Table 1. 2. Counts of gambling advertisements per time of day, in sport and non-sport TV programming

Non-Sport			Sport	
Region	06:00-20:29	20:30-23:59	06:00-20:29	20:30-23:59
Adelaide	9,252	5,064	2,350	992
Brisbane	13,169	8,287	3,565	1,125
Melbourne	14,210	8,045	3,804	1,284
Perth	19,264	10,320	3,916	762
Sydney	16,636	9,239	4,295	1,339
Total	72,531	40,955	17,930	5,502

Note: The data in this table was derived by summing the number of known gambling adverts per region, per time of day, in sport vs non-sport programming, in calendar year 2016.

Table 1.3. shows the average TV audience per 30 minutes within each time period across the different age-groups, along with the adjusted TV audience. Children between the ages of 0-11 years were the largest adjusted audience during the daytime (52%), while young adults between the ages of 18 to 24 were the biggest adjusted audience for the nighttime (42%).

Table 1. 3. Average (and adjusted by years in age category) TV viewing audience per time of day, per age-group

Age Group	06:00 - 20:29:59	20:30 - 23:59:59
0 to 11	182,483 (15,207)	117,036 (9,753)
12 to 17	39,239 (6,540)	78,798 (13,133)
18 to 24	51,615 (7,374)	114,571 (16,367)

Note: The data in this figure was derived by calculating the average number of known audience per time of day, per age group, in 2016. This was then further divided by the number of years in each age group (e.g. 11 years in the 0 – 11 age group) to obtain the adjusted viewing numbers.

Table 1.4. reports the number of gambling adverts by advertisement type in non-sport programming. Table 1.5. shows the number of gambling adverts by advertisement type in sport programming. In both non-sport and sport TV, the majority of the adverts are within the Betting category, followed by the Lotteries category. However, the difference between these two categories in non-sport programming (an additional 9,523 adverts, 15.73%) is not as big as it is in sport programming (an additional 15,065 adverts, 78.50%). In non-sport programming, Perth has the highest number of Betting and Lotteries adverts, while Melbourne has the highest number of Casino adverts (see Table 1.4). In-sport programming, Sydney has the highest number of Betting and Lotteries adverts, while Perth has the highest number of Casino adverts (see Table 1.5).

Table 1. 4. Number of advertisements for different gambling product categories within non-sport TV programs

Ad Category	Adelaide	Brisbane	Melbourne	Perth	Sydney	Total
Betting	7,292	12,455	12,997	14,433	13,375	60,552
Casinos	272	1	697	659	276	1,905
Lotteries	6,752	9,000	8,561	14,492	12,224	51,029

Note: The data in this table was derived by summing the number of gambling adverts per gambling category, per region, in non-sport programming, in 2016.

Table 1. 5. Number of advertisements for different gambling product categories within sport TV programs

Ad Category	Adelaide	Brisbane	Melbourne	Perth	Sydney	Total
Betting	2,787	3,935	4,260	3,837	4,372	19,191
Casinos	23	0	22	44	26	115
Lotteries	532	755	806	797	1,236	4,126

Note: The data in this table was derived by summing the number of gambling adverts per gambling category, per region, in sport programming, in 2016.

Table 1.6. displays the number of adverts per hour of programming in each time period, in each region. While the total number of gambling advertisements during sport programming is lower than in non-sport programming, sport programming has proportionally more advertisements per hour during the daytime and nighttime across all regions.

Table 1. 6. Mean (SD) gambling advertisements per hour of sport vs. non-sport programs that contained gambling advertising for day vs. nighttime for Australia's five major metropolitan regions

06:00 - 20:29:59			20:30 - 23:59:59		
Region	Non-Sport	Sport	Non-Sport	Sport	P-value
Adelaide	1.99 (1.45) ^a	8.82 (6.84) ^b	1.17 (.87) ^c	6.04 (8.10) ^d	.0001
Brisbane	2.92 (2.24) ^a	12.86 (9.99) ^b	1.46 (1.37) ^c	5.68 (4.29) ^d	.0001
Melbourne	3.07 (2.40) ^a	12.88 (9.83) ^b	1.46 (1.41) ^c	5.89 (4.98) ^d	.0001
Perth	4.31 (2.35) ^a	12.59 (10.05) ^b	1.87 (1.54) ^c	7.50 (6.01) ^d	.0001
Sydney	4.09 (2.68) ^a	16.42 (12.62) ^b	2.12 (1.51) ^c	5.84 (4.13) ^d	.0001

* Within rows, means with different superscript letters represent significant differences (at $P < .05$ level) in the mean number of gambling advertisements in sport and non-sport programs in different day parts. Note: The data in this table was derived by summing the number of gambling adverts per day of the year, per region, per time of day, in sport vs non-sport programming, in 2016. This was then divided by the number of hours of sport vs non-sport programming, per day of the year, per region, per time of day (divided by the number of hours in each time of day), in calendar year 2016, which resulted in the number of adverts per hour of programming per day of the year, per region, per time of day in calendar year 2016. We then calculated the average number of adverts per hour of programming by region, time of day, and in sport vs non-sport programming.

Research Aim 2:

Estimate the extent of children (0-11, 12-17 years) and young people's (18-24 years) exposure to gambling advertising when watching sport and non-sport TV during the daytime and nighttime.

During the daytime, children between the ages of 0 to 11 years were the most exposed to gambling advertising when watching TV, receiving the most exposure in daytime non-sport and sport programming (see Table 2.1). During the nighttime (20:30pm-23.59pm), children between the ages of 0 to 11 also had the highest amount of exposure to gambling advertising when watching non-sport programming, however, young adults between the ages of 18 to 24 years had the most exposure when watching sport programming (see Table 2.1). Exposures for the 0 to 11 age-group peaks between 18:00pm and 21.59pm, while the peak exposure times for the 12 to 17 and 18 to 24 year age groups were between 18.30 and 22:29 (see Figure 2.1.).

Table 2. 1. Cumulative estimated advertising exposures in sport and not-sport TV programs for age- groups and time of day for the complete year of 2016

06:00am - 20:29pm			20:30 - 23:59pm	
Age Group	Non-Sport	Sport	Non-Sport	Sport
0 to 11	1,123,433,211	35,319,846	314,046,436	19,378,276
12 to 17	210,313,012	15,378,140	222,189,349	11,698,617
18 to 24	256,862,667	25,312,375	290,651,314	21,520,344

Note: The data in this table was derived by calculating the average known audience numbers per age group, per time of day, per channel, in sport vs non-sport programming, and multiplying it by the total number of known gambling adverts in each time of day, in sport vs non-sport programming.

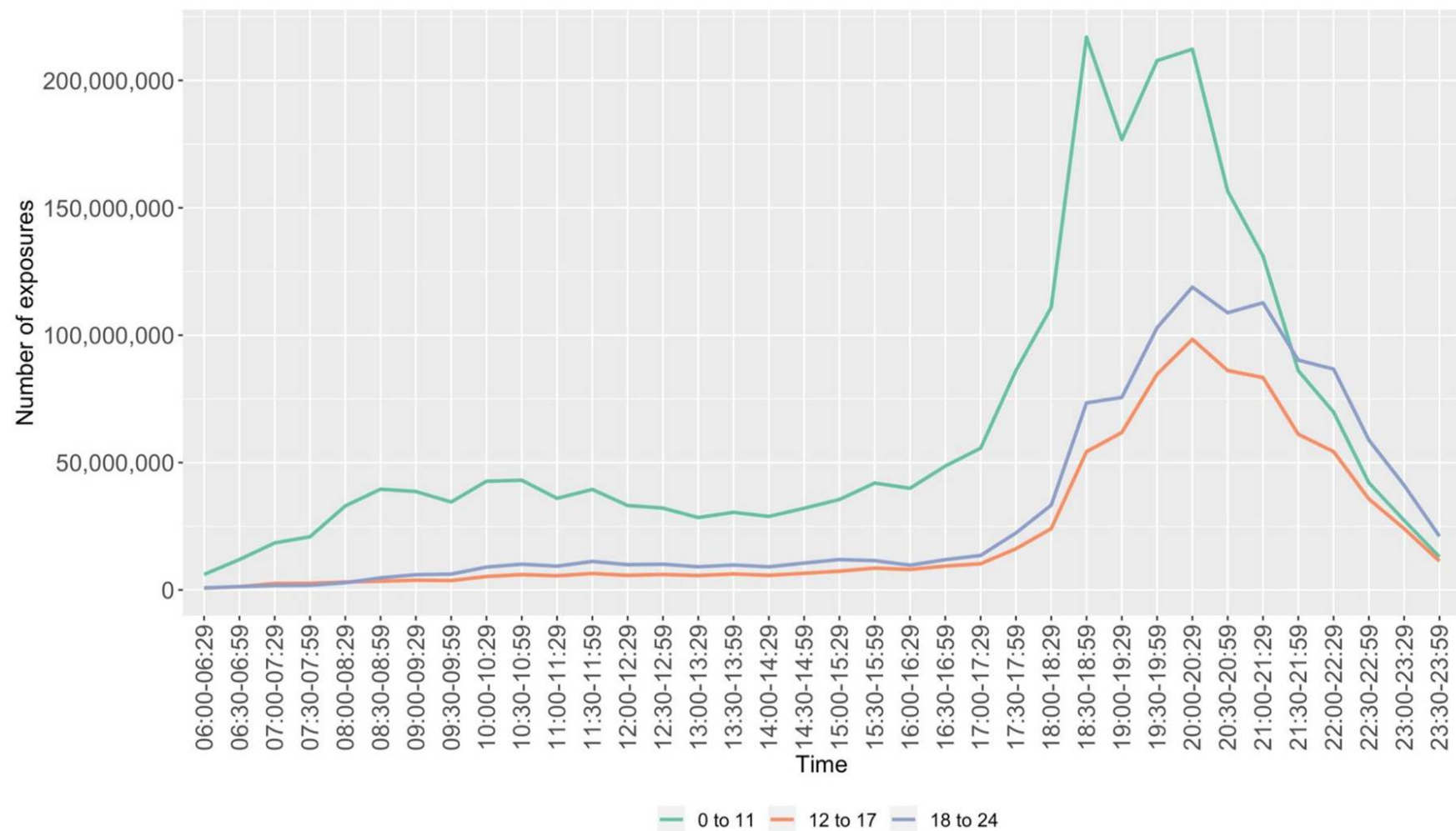


Figure 2. 1. Number of exposures in all TV programming by age-group, per ½ hour in 2016

Note: The data in this figure was derived by calculating the average known audience numbers per age group, per time of day, per channel, per ½ hour, in sport vs non-sport programming, and multiplying it by the total number of known gambling adverts in each time of day, per ½ hour, in sport vs non-sport programming.

Research Aim 3:

Identify the extent to which the newly revised regulations (*The Code*) protect children and young people from exposure to gambling advertising when watching sport and non- sport TV at their peak viewing times.

The regulatory changes to *The Code* introduced in December 2015 resulted in a 55% increase in the amount of gambling advertising on TV. The total number of gambling adverts increased by 46,827 in the 12 months after the regulatory changes to *The Code*, increasing from 85,888 adverts in the 12 months immediately prior, to 132,715 adverts in the 12 months immediately after the introduction of the regulatory changes. The biggest change occurred in the daytime, which saw an increase from 60,634 adverts to 87,842 adverts. Although non- sport programming saw a bigger increase in gambling advertising in raw numbers (from 72,521 to 109,811 adverts) than sport programming (from 13,367 adverts to 22,904 adverts), the percentage change in adverts was greater for sport TV (71%) than non-sport TV (51%).

Figure 3.1. shows the change in the number adverts per ½ hour. The biggest change in a ½ hour of non-sport TV programming occurred between 22:30 to 22:59pm, while the biggest change in a ½ of sport programming occurred between 19:30 to 19:59pm.

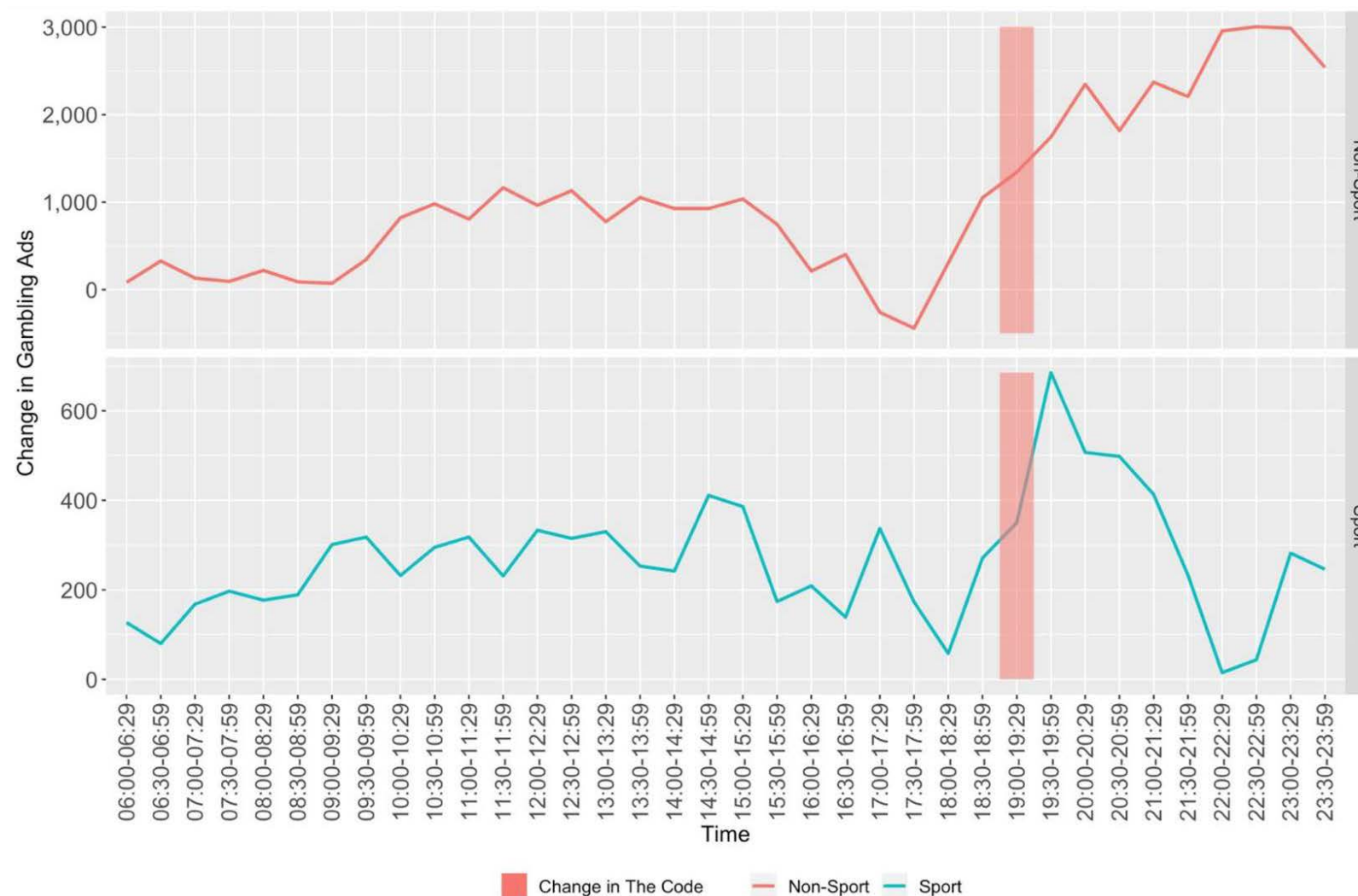


Figure 3. 1. Change in number of gambling adverts per ½ hour between the year prior to the change in policy to the year after the change in policy. Please note the different scales on the Y-Axis

Note: the data in this figure was derived by subtracting the number of known gambling adverts per ½ hour in sport vs non-sport programming in the year after the policy change by the number of known gambling adverts per ½ hour in sport vs non-sport programming in the year before the policy change.

The first change in *The Code* was to allow gambling advertising to be broadcast from 19:00pm as opposed to 19:30pm. This means there is an extra 3.5 hours of programming each week that gambling advertising can be broadcast in. This specific half-hour block of time saw an increase of adverts going from 3,261 adverts to 4,953 adverts (see portion of Figure 3.1. shadowed in red).

The biggest change occurred in non-sport programming, going from 2960 adverts to 4302 adverts (see Table 3.1), while sport programming saw a total increase from 301 adverts to 651 adverts (see Table 3.2.). In terms of counts, Melbourne had the biggest increase in the number of adverts during this ½ hour time period for both non-sport and sport programming (see Table 3.1. and Table 3.2.). In terms of percentage increase, Adelaide had the biggest increase in non-sport programming (see Table 3.1.), while Perth saw the biggest increase in sport programming (see Table 3.2.).

Table 3. 1. Change in the number of gambling adverts aired between 19:00 to 19:29:00, from the year before (Year 1) to the year after (Year 2) the change to The Code in non-sport programming

Region	Year 1	Year 2	Change (%)
Adelaide	72	251	179 (248.61)
Brisbane	553	810	257 (46.47)
Melbourne	474	929	455 (95.99)
Perth	805	1182	377 (46.83)
Sydney	1056	1130	74 (7.01)
Total	2960	4302	1342 (45.34)

Note: the data in this table was derived by subtracting the number of known gambling adverts airing between 19:00 to 19:29pm in non-sport programming in the year after the policy change, by the number of known gambling adverts airing between 19:00 to 19:29pm in non-sport programming in the year before the policy change.

Table 3. 2. Change in the number of gambling adverts aired between 19:00pm to 19:29pm, from the year before (Year 1) to the year after (Year 2) the policy change in sport programming

Region	Year 1	Year 2	Change (%)
Adelaide	31	62	31 (100.00)
Brisbane	28	113	85 (303.57)
Melbourne	89	184	95 (106.74)
Perth	25	107	82 (328.00)
Sydney	128	185	57 (44.53)
Total	301	651	350 (116.28)

Note: the data in this table was derived by subtracting the number of known gambling adverts airing between 19:00 to 19:29 in sport programming in the year after the policy change, by the number of known gambling adverts airing between 19:00 to 19:29pm in sport programming in the year before the policy change.

Estimated Exposures (cumulative audiences x number of adverts presented) for this ½ hour time period across the entire year also increased by 32%, going from 1,512,893,695 in the year prior to the policy change to 2,008,662,088 in the year after the policy change (Figure 3.2.). This is an additional 495,768,394 exposures of children and young people. This increase in exposures is caused primarily from the increase of gambling adverts outlined above, as the total number of viewers of commercial TV between 19:00pm to 19:29pm decreased from 4,231,308 to 4,151,091 (80,217 fewer estimated viewers, or a decrease of 1.93%).

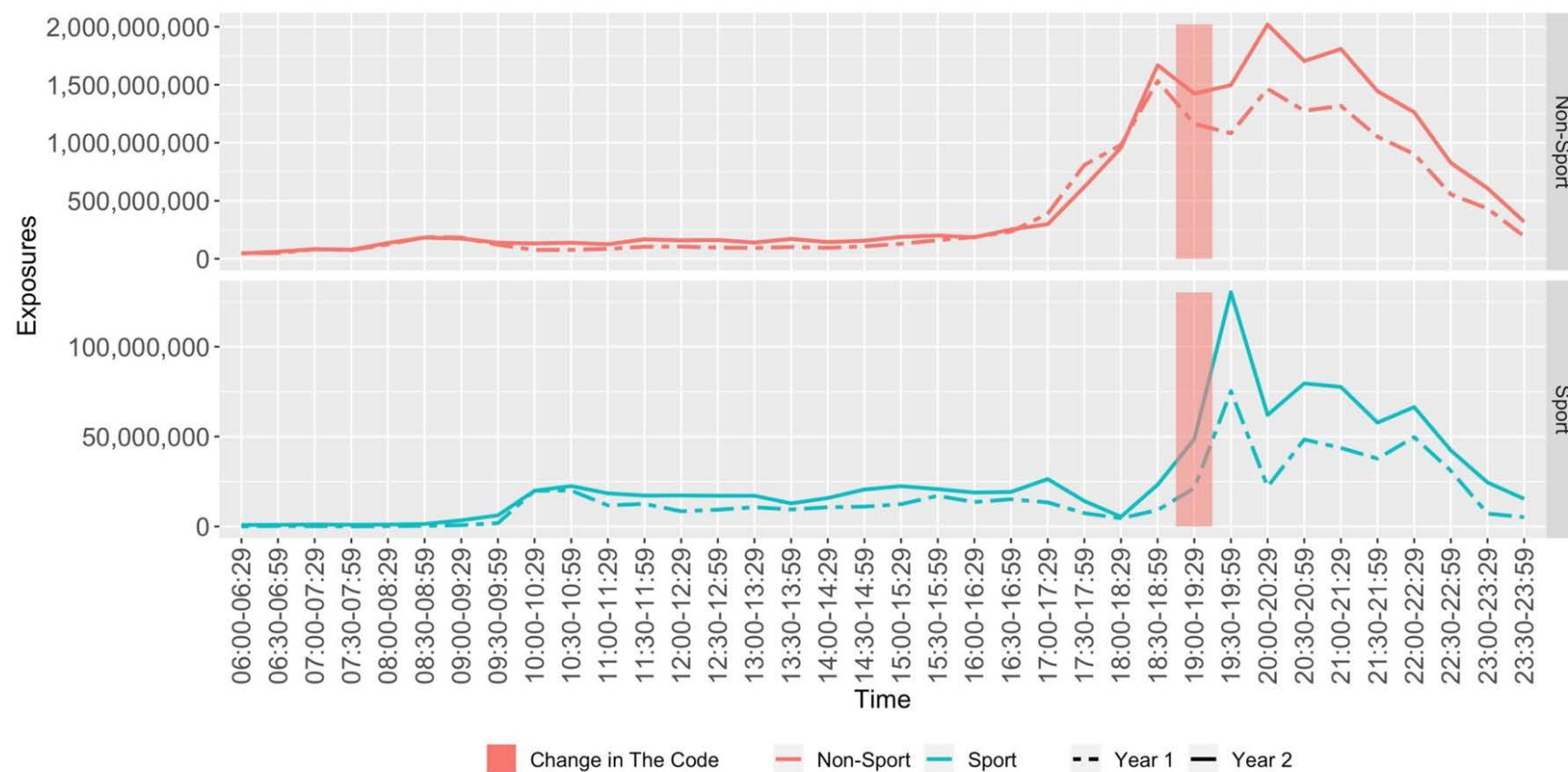


Figure 3. 2. Exposures to gambling adverts per ½ hour in the year before (Year 1) to the change in policy to the year after (Year 2) the change in policy in sport and non-sport programming. Please note the different scales on the Y-Axis

Note: The data in this figure was derived by calculating the average known audience numbers per ½ hour, per channel, in sport vs non-sport programming, a year before and after the policy change, and multiplying it by the total number of known gambling adverts per ½ hour, in sport vs non-sport programming a year before and after the policy change.

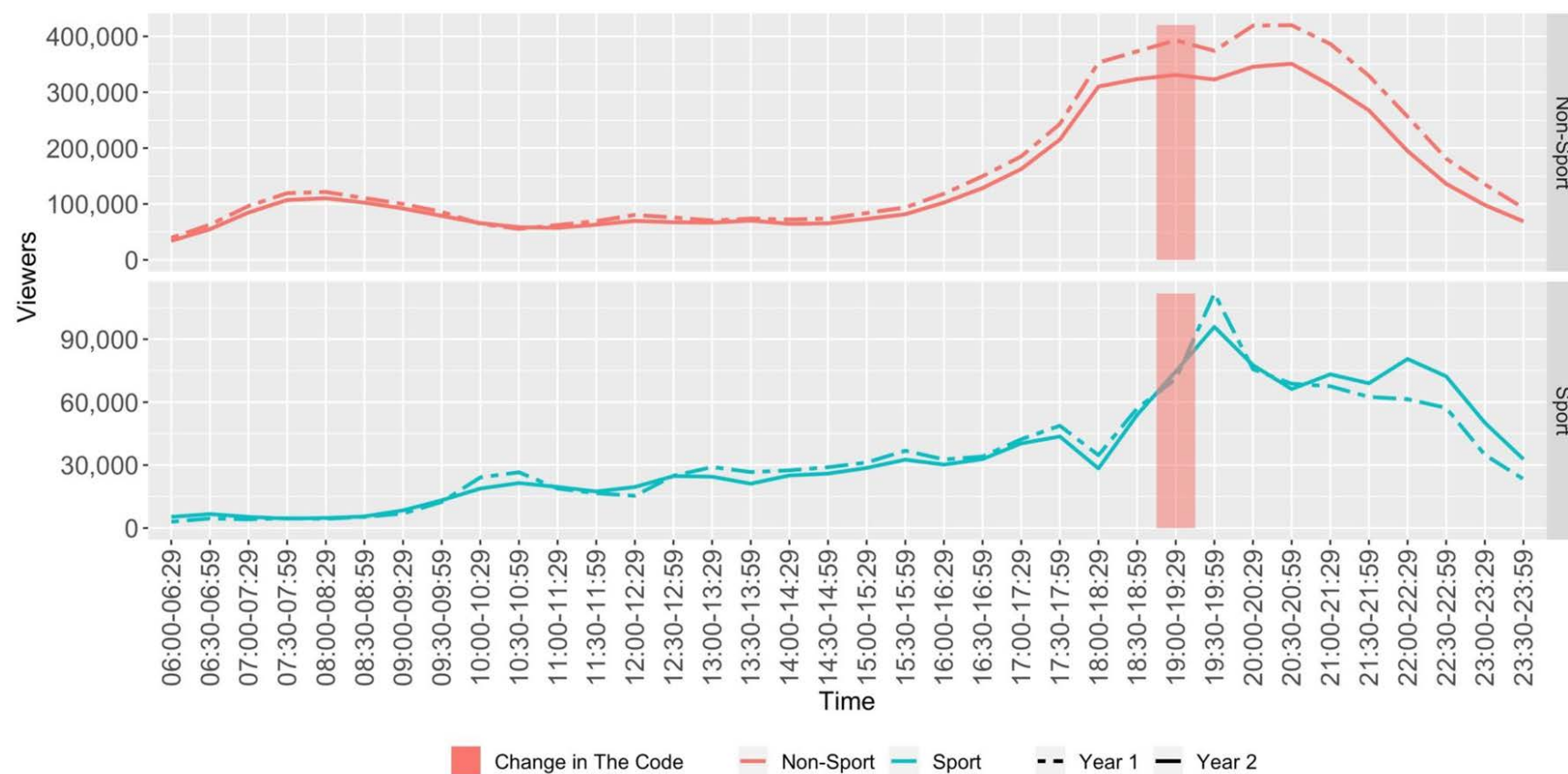


Figure 3.3. Viewers per ½ hour in the year prior (Year 1) to the change in policy to the year after (Year 2) the change in policy in sport and non-sport programming. Please note the different scales on the Y-Axis

Note: The data in this figure was derived by calculating the average known audience numbers per ½ hour, per channel, in sport vs non-sport programming, a year before and after the policy change.

Another change to *The Code* made it permissible for PG rated programming at any time of day, which meant that there is an additional 5.5 hours a day and 38.5 hours a week in which gambling advertising can be broadcast in. Within programming classified as PG, there was an overall increase in the number of gambling adverts, going from 8,209 in Year 1, to 17,155 gambling adverts in the year after the policy change (see Table 3.3.). In terms of counts, Perth saw the biggest change, going from 1,752 adverts to 4,573 adverts, followed by Melbourne, which saw an increase of 2,079 adverts (see Table 3.3.). In terms of percentage increase, Melbourne had the largest percentage increase, followed closely by Brisbane (see Table 3.3.).

The biggest increase in the number of gambling adverts aired within PG rated programming per ½ hour occurred between 19:00pm and 19:29pm (see red highlight in Figure 3.4.). Prior to the December 2015 changes made in *The Code*, this half hour of programming would have been restricted from showing gambling adverts. The peak in the number of gambling adverts in PG programming between 19:00pm and 19:29pm almost coincides with peak viewing hours for all age groups (Figure 3.5.). Within this specific ½ hour time period, the increase in gambling adverts in PG programming has subsequently resulted in an additional 28,022,857 (75.40%) exposures for the 0-11 age-group; an additional 8,153,711 (55.68%) exposures for the 12-17 age-group; and an additional 10,994,720 (64.40%) exposures for the 18-24 age-group (Figure 3.6.).

Breaking this down to the different regions, Brisbane (+ 262 adverts), Melbourne (+ 238 adverts), and Perth (+ 245 adverts) also saw the biggest increase in gambling adverts aired during PG rated programming between 19:00pm and 19:29pm. Sydney's biggest increase occurred between 13:30pm and 13:59pm (+ 121 adverts), while Adelaide's biggest increase occurred between 15:00pm and 15:29pm (+ 98 adverts).

Table 3. 3. Change in the number of gambling adverts broadcast in PG rated TV programming in each region from the year before (Year 1) to the year after (Year 2) the policy change

Region	Year 1	Year 2	Change	(%)
Adelaide	926	2,137	1,211	(130.78)
Brisbane	1,000	3,003	2,003	(200.30)
Melbourne	1,034	3,113	2,079	(201.06)
Perth	1,752	4,573	2,821	(161.02)
Sydney	3,497	4,329	832	(23.79)
Total	8,209	17,155	8,946	(108.98)

Note: the data in this table was derived from summing the number of known gambling adverts in PG rated programming, per region, in the year before and the year after changes to *The Code*.

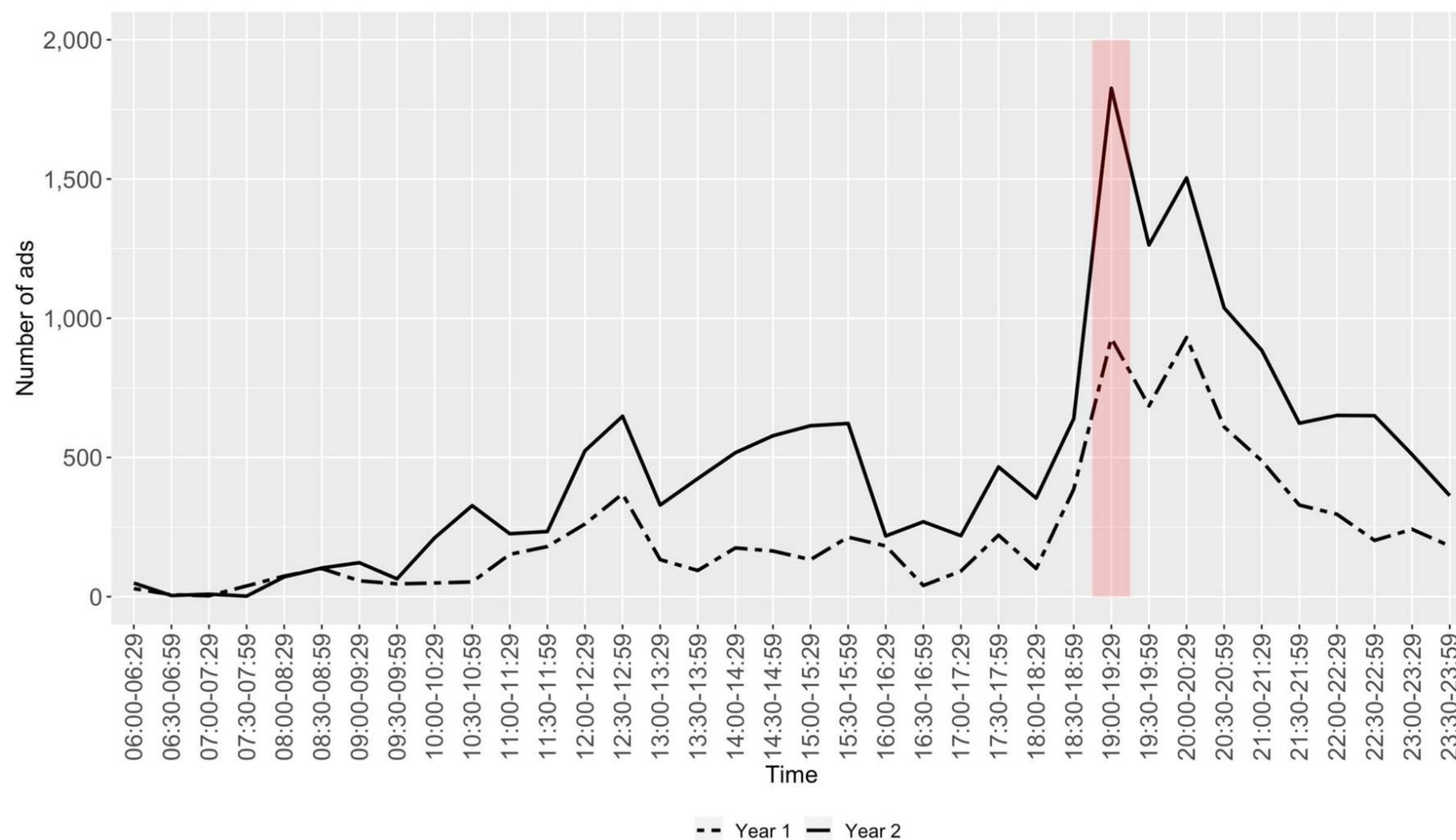


Figure 3. 4. Number of gambling adverts per ½ hour, in PG rated TV programming, a year before (Year 1) and after (Year 2) the policy change

Note: The data in this figure was derived from summing the number of known gambling adverts in PG rated programming per ½ hour, in the year before and the year after changes to *The Code*.

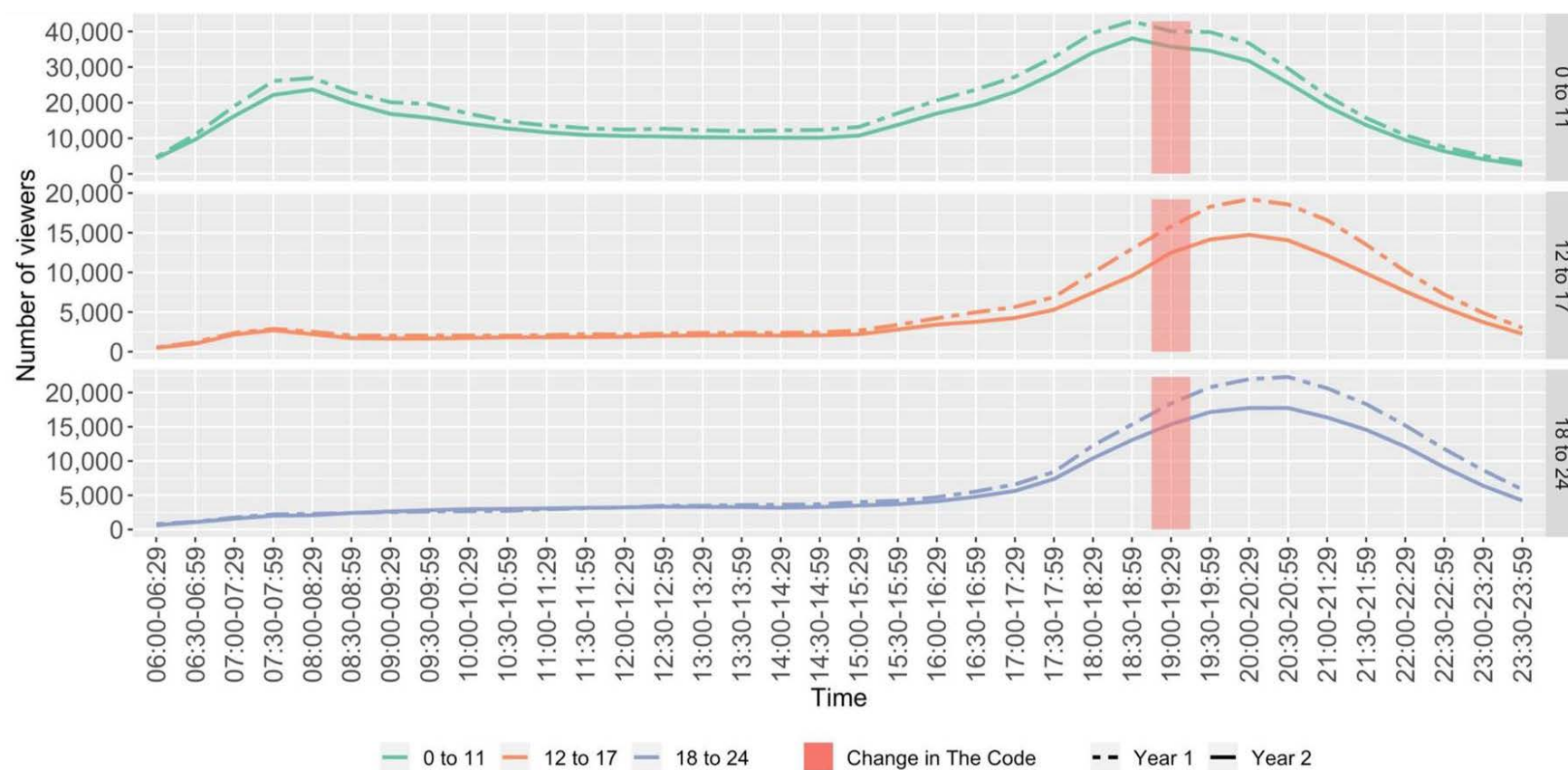


Figure 3. 5. Audience per ½ hour, in all TV programming, per age-group, a year before (Year 1) and after (Year 2) the policy change. Please note the different scales on the Y-Axis

Note: The data in this figure was derived from calculating the average number of known viewers, per age group, per channel, per ½ hour, in the year before and the year after changes to *The Code*.

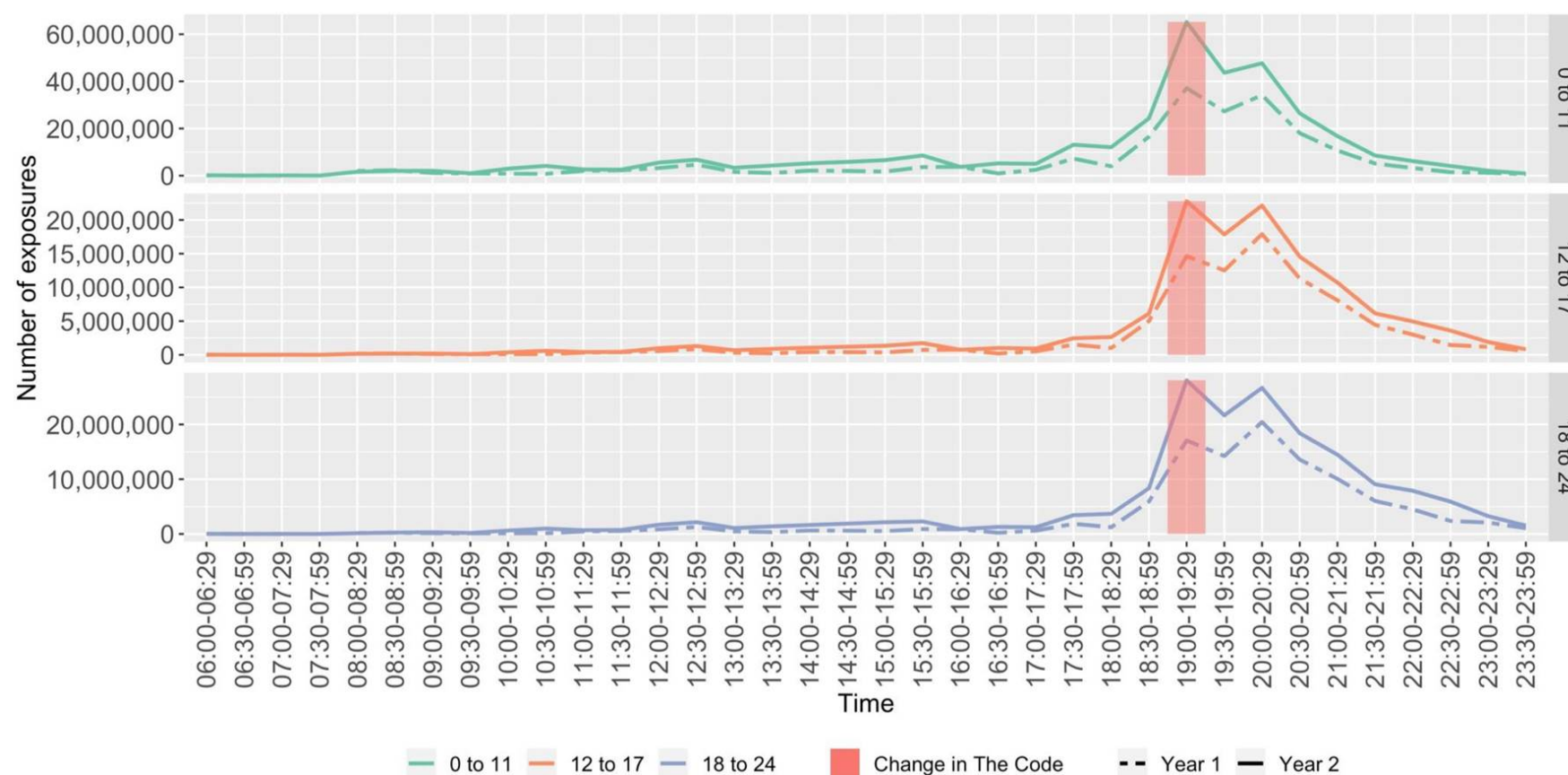


Figure 3. 6. Exposures per ½ hour, in PG programming, per age-group, a year before (Year 1) and after (Year 2) the policy change. Please note the different scales on the Y-Axis

Note: The data in this figure was derived from calculating the average number of known viewers, per age group, per channel, per ½ hour, in the year before and the year after changes to *The Code*, and multiplying it by the number of known gambling adverts in PG rated programming, per ½ hour, in the year before and the year after changes to *The Code*

Looking at the gender split, again the peak in the number of gambling adverts in PG programming occurred between 19:00 and 19:29, which almost coincides with peak viewing hours for all age-groups (Figure 3.8.). Within this specific ½ hour time period, the increase in gambling adverts in PG programming has subsequently resulted in an additional 17,577,287 (64.50%) exposures for the men 0-17 years; an additional 4,859,172 (64.60%) exposures for men 18–24 years; an additional 20,518,668 (74.40%) exposures for the women 0–17 years; and an additional 6,181,592 (64.80%) exposures for women 18–24 years (Figure 3.7.).

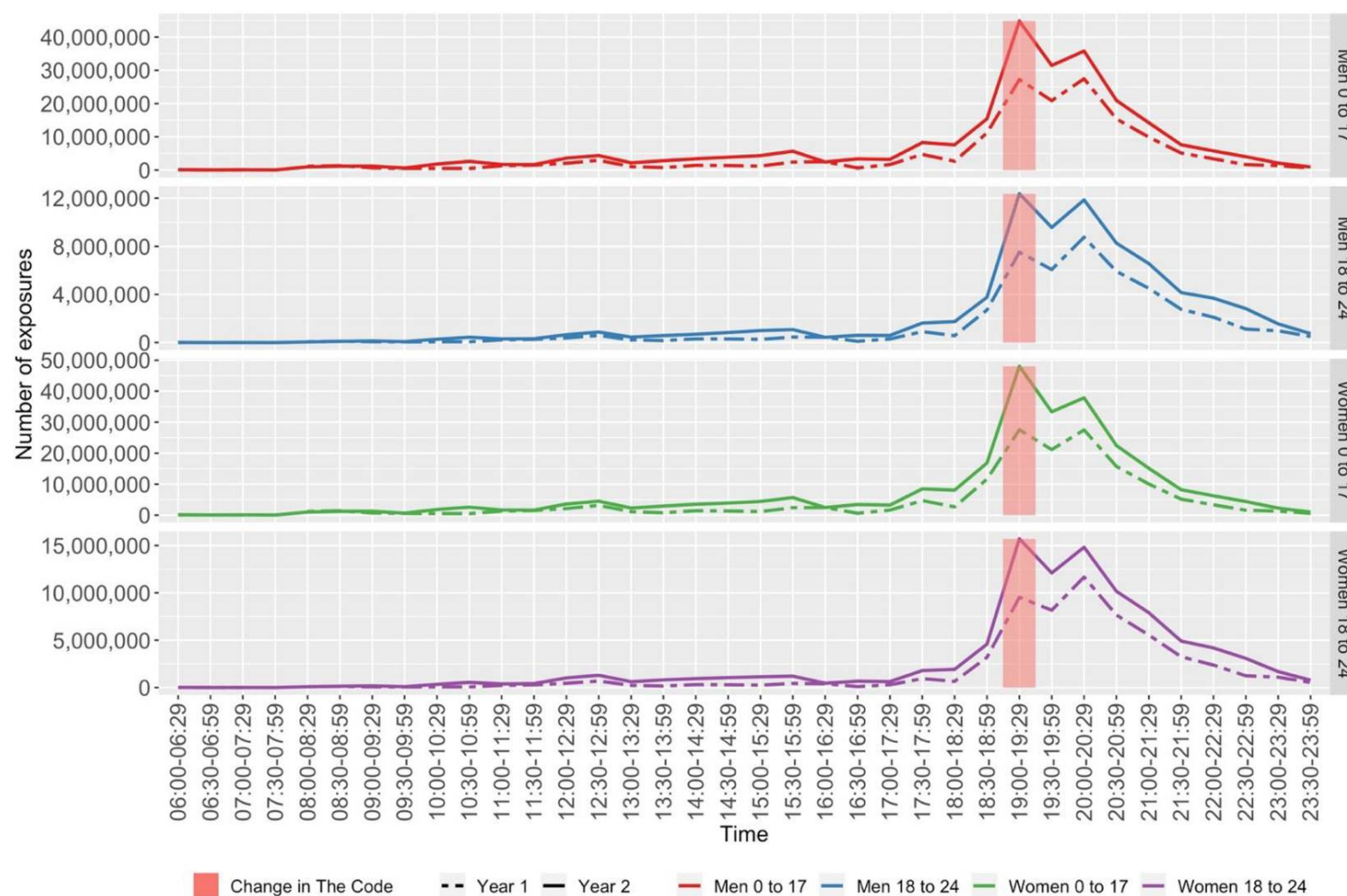


Figure 3. 7. Exposures per ½ hour, in PG programming, per gender-group, a year before (Year 1) and after (Year 2) the policy change. Please note the different scales on the Y-Axis

Note: The data in this figure was derived from calculating the average number of known viewers, per gender group, per channel, per ½ hour, in the year before and the year after changes to *The Code*, and multiplying it by the number of known gambling adverts per ½ hour, in the year before and the year after changes to *The Code*.

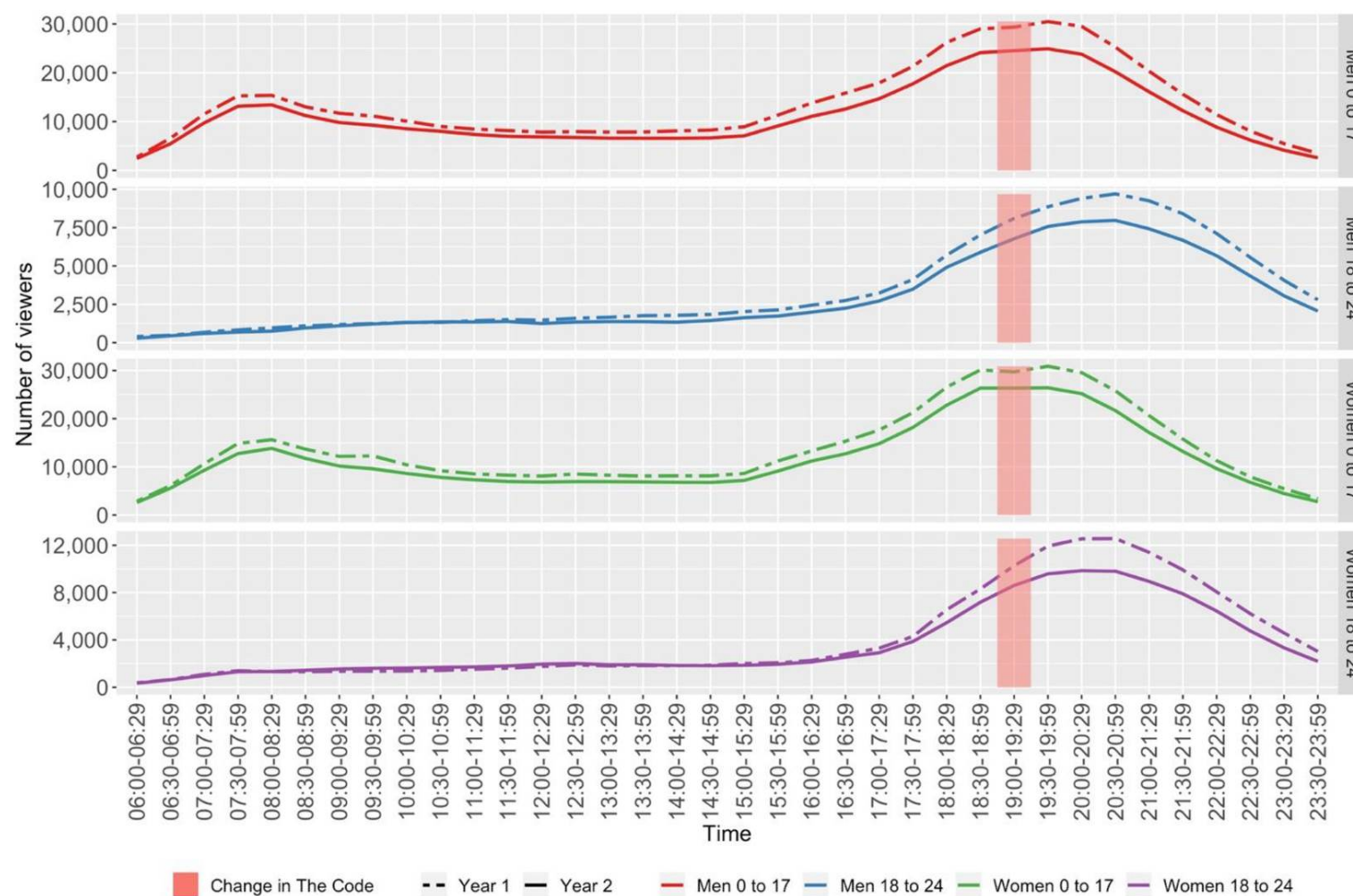


Figure 3. 8. Audience per ½ hour, in all TV programming, per age-group, a year before (Year 1) and after (Year 2) the policy change. Please note the different scales on the Y-Axis

Note: The data in this figure was derived from calculating the average number of known viewers, per gender group, per channel, per ½ hour, in the year before and the year after changes to *The Code*

It is also noteworthy that although there were no changes made to the clause stating that:

“[a] television commercial relating to betting or gambling services cannot be broadcast during any program that is broadcast between 5am and 8.30pm and principally directed to children”

Figure 3.9 shows that there a considerable number of gambling advertisements broadcast between 05:00am and 20:30pm in programs categorised as Children and Family programming. Specifically, there were 719 gambling advertisements airing in TV programming classified as

Children and Family programming in the year prior to the changes to *The Code*. This number rose to 1,309 in the year after the changes to *The Code*, almost a doubling from the previous period. This increase in gambling adverts in Children and Family programming has subsequently led to an increase in exposures. The 0 to 11 year age-group went up by 115.37% (from 13,397,841 to 28,855,375); the 12 to 17 year old age-group went up by 152.59% (from 3,209,802 to 8,107,718); and the 18 to 24 age-group went up by 167.44% (from 3,984,743 to 10,656,961).

Examining gender differences, there was an increase of 10,260,356 exposures (115.22%) for men 0-17 years; an increase of 2,892,555 exposures (155.87%) for men between 18-24 years; an increase of 11,259,656 exposures (125.37%) for women 0-17 years; and an increase of 3,776,242 exposures (177.16%) for women 18-24 years.

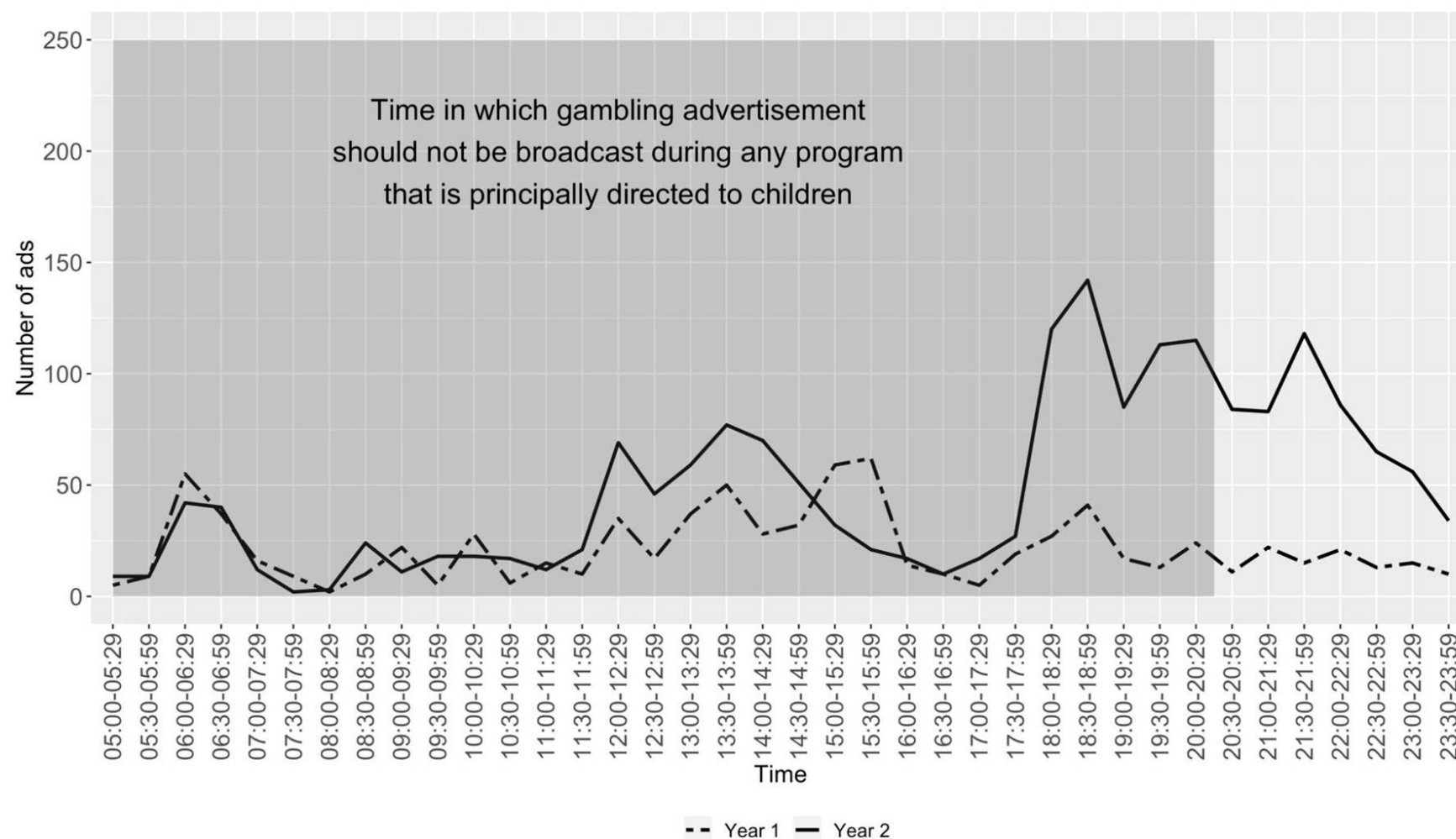


Figure 3. 9. Number of gambling adverts per ½ hour, in Children and Family TV programming, a year before (Year 1) and after (Year 2) the policy change

Note: The data in this figure was derived from summing the known number of gambling adverts in Children and Family programming per ½ hour in the year before and after changes to *The Code*

Research Aim 4:

To identify which sports (e.g., AFL, NRL, cricket, racing) have the highest amounts of gambling advertising per hour of programming time across individual, and multiple years.

As displayed in Figure 4.1, AFL has the highest number of total adverts in both 2015 and 2016. Adverts increased in all of the selected sport codes except for soccer, which saw a slight decline. In 2015 Horse Racing had the highest number of adverts per hour in programming during the daytime, followed by NRL and AFL. During the nighttime in 2015, Horse Racing again had the highest number of adverts per hour of programming, followed by AFL and NRL. In 2016, Horse Racing and NRL retained the top two spots for number of adverts per hour of programming during the daytime, but Soccer over took NRL for the third highest number of adverts per hour of programming. In the nighttime in 2016, Horse Racing still had the highest number of adverts per hour of programming, followed by AFL and Rugby Union. The general trend is an increase of the number of adverts per hour of programming within the sports codes with the exception of Cricket in the daytime which saw a slight decrease. It is important to note that although Horse Racing had the highest average number of adverts per hour, it results from its overall lower programming time relative to other sports. Of course the programming time Horse Racing has is heavily exploited by gambling advertisers.

Table 4. 1. Mean (SD) gambling advertisements per hour of programming in sport programs that contained gambling advertising for day vs. nighttime, in 2015 vs 2016, for Australia's five major metropolitan regions, in select sport codes

06:00 - 20:29:59			20:30 - 23:59:59	
Sport Code	2015	2016	2015	2016
AFL	9.96 (4.09)	18.54 (11.32)	21.74 (19.65)	27.85 (20.92)
Cricket	8.74 (16.29)	7.64 (9.30)	6.66 (5.19)	14.32 (15.72)
Horse Racing	22.45 (17.72)	36.56 (21.62)	29.18 (8.54)	60.34 (33.53)
Motor Racing	4.56 (4.24)	11.52 (10.58)	3.45 (3.01)	11.58 (14.24)
NRL	15.48 (14.36)	25.85 (13.76)	9.63 (4.12)	14.72 (5.65)
Rugby Union	4.98 (3.68)	9.44 (10.68)	9.05 (7.91)	18.81 (12.28)
Soccer	4.75 (2.77)	21.85 (31.01)	5.87 (3.14)	9.81 (7.48)
Tennis	6.44 (3.87)	11.94 (16.89)	5.82 (6.64)	11.77 (11.85)

Note: The data in this table was derived by summing the number of gambling adverts in each day of the year in 2015 and 2016, in each sport code, in each time of day. This was then divided by the number of hours of programming in each sport code, in each day of the year in 2015 and 2016, in each time of day (divided by the number of hours in each time of day), which resulted in the number of hours adverts per hour of programming in each day of the year in calendar year 2016. We then calculated the average number of adverts per hour of programming by select sport code, per time of day, and in 2015 vs 2016.

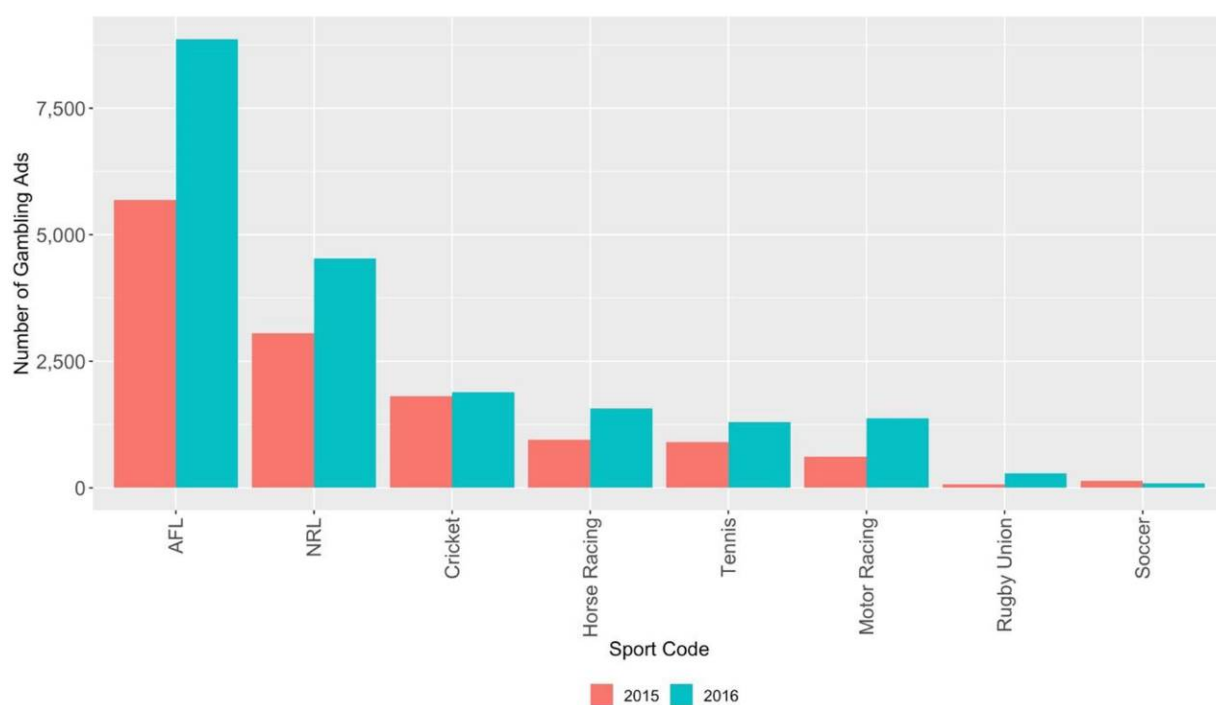


Figure 4. 1. Number of gambling adverts in select sport codes in 2015 and 2016

Note: The data in this figure was derived by summing the known number of gambling adverts per select sport code, in 2016 and 2015

Research Aim 5:

Identify which sports expose children and young people to the most gambling advertising given children and young people's known TV viewing times.

The AFL is the sport with the highest exposures across all age-groups (see Table 5.1.). NRL is the sport with the second highest exposures across all age-groups, followed by Cricket (see Table 5.1.). AFL also has the highest exposures across both men and women, followed by NRL and Cricket (see Table 5.2). Figure 5.1. shows the number of exposures to the select sport codes, per ½ hour, per age-group.

Table 5. 1. Number of exposures in select sport code, per age-group, in 2016

Sport Code	0 to 11 Years	12 to 17 Years	18 to 24 Years
AFL	21,765,270	10,315,522	17,536,815
Cricket	8,245,159	4,325,070	8,504,531
Horse Racing	2,568,537	970,229	1,981,821
Motor Racing	1,781,393	730,364	1,374,542
NRL	19,884,292	8,629,613	14,763,275
Rugby Union	241,180	66,592	123,144
Soccer	101,789	72,969	138,376
Tennis	1,403,726	1,010,075	2,089,019

Note: The data in this table was derived by calculating the average known viewers per age group, per sport code, in 2016, and multiplying it by the number of known gambling adverts per sport code in 2016.

Table 5. 2. Number of exposures in select sport code, per gender-group, in 2016

Sport Code	Men		Women	
	0 to 17	18 to 24	0 to 17	18 to 24
AFL	19,628,801	10,996,632	15,010,432	6,468,958
Cricket	8,388,207	5,907,800	5,356,300	2,589,795
Horse Racing	1,924,796	1,119,217	1,873,795	862,604
Motor Racing	1,588,849	837,141	1,118,749	532,513
NRL	17,999,379	9,511,641	13,288,974	5,215,601
Rugby Union	203,755	83,641	130,391	38,078
Soccer	135,446	110,782	56,004	27,593
Tennis	1,407,201	1,180,088	1,295,138	897,868

Note: The data in this table was derived by calculating the average known viewers per gender group, per sport code, in 2016, and multiplying it by the number of known gambling adverts per sport code in 2016.

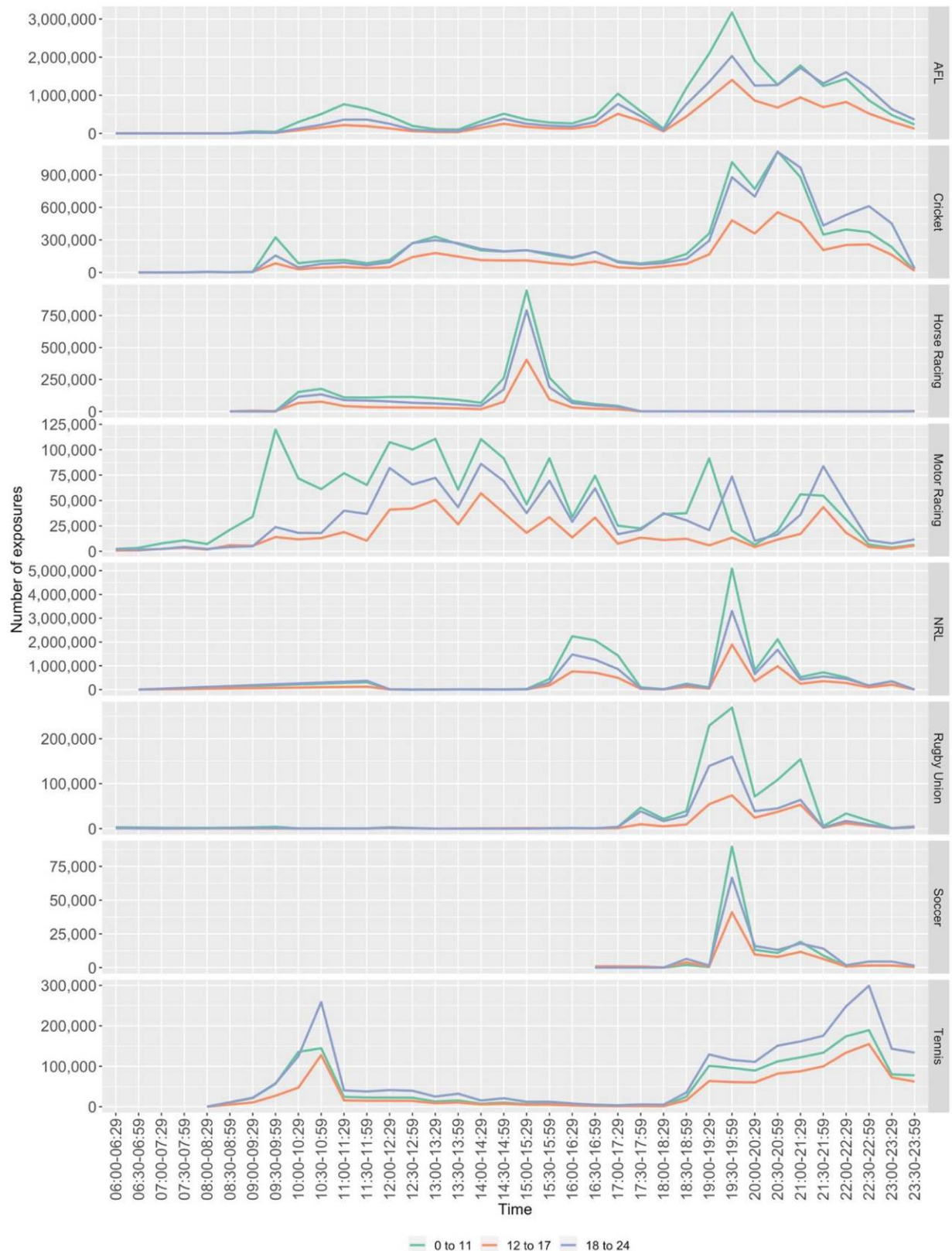


Figure 5. 1. Number of exposures per ½ hour, per age-group, in select sport code, in 2016

Note: The data in this figure was derived by calculating the average known viewers per age group, per sport code, per ½ hour, in 2016, and multiplying it by the number of known gambling adverts per sport code, per ½ hour, in 2016.

Research Aim 6:

Which gambling and betting organisations (brands) are most represented in different sports, and are most likely to be seen by children and young people given their viewing patterns of sport and non-sport programming

Betting advertisements were the most prominent type of gambling advertising in all of the sport codes, followed by lotteries, and casinos. The AFL has the largest number of betting and lottery adverts, while Cricket has the largest number of Casino adverts (see Table 6.1.).

Table 6. 1. Number of gambling adverts in select sport code, per ad type, in 2016

Sport Code	Betting	Casinos	Lotteries
AFL	8,304	28	534
Cricket	1,476	35	367
Horse Racing	1,528	0	43
Motor Racing	814	12	349
NRL	546	1	75
Rugby Union	191	0	92
Soccer	73	1	17
Tennis	1,065	12	224

Note: The data in this table was derived by summing the number of known gambling adverts per sport code, per gambling category, in 2016.

The AFL also generate the highest number of exposures in betting adverts in all age- and gender-groups, while the NRL generates the highest number of exposures in all age-and gender-groups for lottery and casino adverts (see Table 6.2 and 6.3).

Table 6. 2. Number of exposures in select sport code, per ad type, per age-group, in 2016

	Betting			Casino			Lotteries		
Sport Code	0 to 11 Years	12 to 17 Years	18 to 24 Years	0 to 11 Years	12 to 17 Years	18 to 24 Years	0 to 11 Years	12 to 17 Years	18 to 24 Years
AFL	20,385,608	9,661,640	16,425,187	68,738	32,578	55,384	1,310,924	621,305	1,056,244
Cricket	6,476,468	3,397,288	6,680,201	152,850	80,179	157,658	1,615,842	847,604	1,666,672
Horse Racing	2,498,233	943,673	1,927,577	-	-	-	70,304	26,556	54,245
Motor Racing	1,249,052	512,107	963,783	16,879	6,920	13,024	515,461	211,337	397,736
NRL	15,218,018	6,604,490	11,298,757	254,365	110,392	188,855	4,411,910	1,914,731	3,275,663
Rugby Union	162,775	44,944	83,111	-	-	-	78,405	21,648	40,033
Soccer	82,088	58,846	111,593	1,095	785	1,488	18,607	13,338	25,295
Tennis	1,149,092	826,848	1,710,073	12,948	9,317	19,268	241,687	173,910	359,677

Note: The data in this figure was derived by calculating the average known viewers per age group, per sport code, in 2016, and multiplying it by the number of known gambling adverts per sport code, per gambling category, in 2016.

Table 6. 3. Exposures in select sport codes, per ad type, per gender-group, in 2016

	Betting				Casinos				Lotteries			
	Men 0 to 17	Men 18 to 24	Women 0 to 17	Women 18 to 24	Men 0 to 17	Men 18 to 24	Women 0 to 17	Women 18 to 24	Men 0 to 17	Men 18 to 24	Women 0 to 17	Women 18 to 24
AFL	18,384,566	10,299,575	14,058,948	6,058,902	61,990	34,729	47,405	20,430	1,182,244	662,328	904,080	389,626
Cricket	6,588,830	4,640,502	4,207,306	2,034,251	155,502	109,520	99,296	48,010	1,643,875	1,157,779	1,049,699	507,534
Horse Racing	1,872,112	1,088,583	1,822,507	838,994	-	-	-	-	52,684	30,634	51,288	23,610
Motor Racing	1,114,047	586,975	784,429	373,380	15,055	7,932	10,600	5,046	459,747	242,234	323,720	154,087
NRL	13,775,440	7,279,531	10,170,432	3,991,649	230,252	121,675	169,996	66,719	3,993,687	2,110,435	2,948,546	1,157,233
Rugby Union	137,517	56,450	88,003	25,699	-	-	-	-	66,238	27,191	42,389	12,379
Soccer	109,231	89,341	45,165	22,253	1,456	1,191	602	297	24,759	20,251	10,237	5,044
Tennis	1,151,936	966,021	1,060,201	734,995	12,980	10,885	11,946	8,282	242,285	203,182	222,991	154,591

Note: The data in this table was derived by calculating the average known viewers per gender group, per sport code, in 2016, and multiplying it by the number of known gambling adverts per sport code, per gambling category, in 2016.

Discussion

There is an extremely well established public health literature showing that exposure to advertising of unhealthy products such as tobacco, alcohol, and fast-foods is associated with earlier initiation of use of these products and more problematic use in young adulthood. Indeed, research suggests a dose-response relationship whereby the greater the exposure the greater the effect on problem behaviours (Anderson et al., 2009; Foxcroft and Smith, 2009; Hanewinkel et al., 2011). Although considerably less developed, perhaps because of the speed with which gambling advertising has colonised Australian TV and sporting culture, research on the effect of gambling advertising from Australia and elsewhere suggests an association between exposure to gambling advertising and gambling intentions and more problematic gambling behaviour (Clemens, 2017; Deans et al., 2017; Derevensky et al., 2010; Gavriel-Fried et al., 2010; Hing et al., 2014; 2017; Lamont et al., 2016; Thomas et al., 2012). This suggests that an environment that is heavily laden with gambling advertising is likely to result across time in a population that has high rates of gambling related harm, and problem gambling.

This project sought to establish the extent of gambling advertising in the Australian TV environment, and children and young people's exposure to that advertising when watching free-to-air TV at their peak viewing times. Free-to-air TV in Australia is awash with gambling advertising. There were 136,918 gambling adverts on Australian commercial free-to-air TV in 2016, with an average of 375 adverts per day. The majority (66%) of the gambling adverts took place during the daytime (06:00am-08:29pm), a period when large numbers of children were known to be watching television. The majority of gambling advertising were in non-sport TV, however, this is merely due to the amount of programming time for non-sport ($\approx 91\%$) vs. sport TV ($\approx 9\%$). Taking into account this programming time difference, sport TV had on average more than four times the amount of gambling advertising per hour that non-sport TV had in 2016.

The project also sought to establish whether recent changes (1 December 2015) to gambling advertising regulations contained in the Commercial Television Industry Code of Practice (*The Code*), and designed to protect children and young people from exposure to such advertising, had increased or decreased gambling advertising and children and young people's exposure when watching commercial free-to-air TV in Australia. The changes to *The Code* have significantly increased (55%) the number of gambling adverts placed in Australian free-to-air commercial TV. In the year prior to changes to *The Code*, there were 85,888 gambling adverts between 6am and 11.59pm, an average of 235 adverts per day. This increased to 132,715 gambling adverts between 6am and 11.59pm, an average of 363 adverts per day, in the year following the changes to *The Code*. A concomitant increase in children and young people's exposure to gambling advertising when watching TV was also found.

The increase in adverts and exposure appear to be directly attributable to the changes in regulations implemented in *The Code* (e.g., times of day gambling allowed, program classification changes PG). For example, the change in *The Code* allowing gambling advertising from 7pm rather than 7.30pm, resulted in a 52% increase in gambling adverts during that half hour (7pm-7.30pm). More specifically, this $\frac{1}{2}$ hour of programming saw an additional 1692 adverts. The increase in children and young people's exposure to gambling adverts is also not due to increased audience numbers, as absolute audience numbers declined slightly (17%) for the 12 months after *The Code* change. Similarly, the change in *The Code* allowing PG rated programming at any time of the day resulted in a 109% increase in gambling advertising (note: *The Code* allows gambling advertising in PG programs). The number of adverts in PG rated programming went up from 7,649 in the year prior to changes in *The Code*, to 18,010 in the year following changes to *The Code* (a

57.53% change). It should be noted that the results of this study show that the previous regulations in *The Code* (prior to 1 December 2015), were also not effective in protecting children and young people from repeated exposure to gambling advertising when watching commercial free-to-air TV.

The present results on the extent of gambling advertising, and children and young people's exposure are concerning but should be placed in some context. The amount of gambling advertising and children and young people's exposure is approximately five times more than that found in a recent study examining the extent of alcohol advertising in Australian free-to-air sport and non-sport TV for a complete year (O'Brien et al., 2015). The mean number of gambling adverts per hour in sport TV in the present study is more than six times that found for alcohol advertising in sport TV in previous work (Carr, O'Brien et al., 2016; O'Brien et al., 2015).

The results indicate that the gambling industry views some Australian sports as considerably more attractive than others for the placement of gambling advertising. The gambling industry placed considerably more adverts in the AFL than in any other sport. For example, the AFL had 5,688 gambling adverts in 2015 and 8,866 in 2016, a 55% increase. The AFL also had the highest number of exposures of all the sport codes. In 2015, the AFL generated 39,950,288 exposures to gambling adverts, which increased to 65,449,773 in 2016, a 64% increase. The greater placement of gambling advertising in sports such as the AFL does not appear due purely to audience numbers. This raises the question as to whether the gambling industry is targeting particular sports because it knows that those individuals that watch a particular sport may be more susceptible to gambling messages, or have higher proportions of regular/heavy gamblers. Research on alcohol advertising has found that the alcohol industry targets certain sports because of the types of audience that they attract, and their positivity towards often humorous and appealing alcohol adverts (Smith and Foxcroft, 2009).

There has been some suggestion that the over-representation of young males in gambling-related harms and problem gambling/sport betting (Armstrong and Carroll, 2017), may be due to their high exposure to gambling advertising when watching sport. The present results do suggest that males receive significantly more exposure to gambling adverts as more males watch sport TV than do females. However, the numbers of females watching sport, and the AFL and NRL in particular, are very high as is their exposure to gambling advertising. Whether males greater exposure to gambling advertising in sport is associated with their higher rates of gambling-related harm needs to be explored in future research.

Current regulations within the Commercial Television Industry Code of Practice (*The Code*) that govern the allowance of gambling advertising in commercial free-to-air TV, and are intended to protect children from exposure to gambling advertising, are ineffective. The changes to *The Code* introduced in December 2015 have resulted in an approximate doubling of gambling advertising on free-to-air TV, and an accompanying increase in children and young people's exposure. It is apparent that the gambling industry has taken advantage of the weakening of *The Code*, and that it strategically places larger proportions of gambling advertising within sport TV. Policy makers need to strengthen *The Code* so that it achieves its purpose of protecting children. A ban on gambling advertising during sporting events and before 8.30pm would halve children and young peoples exposure to gambling advertising when they are watching free-to-air TV at their peak viewingtimes.

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