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Follow-up study of loyalty card customers

Changes in gambling behaviour over time

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Executive summary

Aims and objectives

- This study is a follow-up to the 2014 study of holders of bookmakers loyalty cards, commissioned by the Responsible Gambling Trust (now GambleAware), as part of a programme of research looking at users of machines in bookmakers. The original survey is called the baseline study hereafter.
- This study was commissioned to
 - explore changing patterns of gambling behaviour over time,
 - examine changes in problem gambling behaviour, and
 - identify who is more likely to change problem gambling status.
- This report summarises headline findings on changes in behaviour over time, changes in problem gambling status, and the characteristics of machine users who are most at risk of becoming problem gamblers.

Survey design and approach

- The sample included 3738 participants in the 2014 survey who had given permission for further contact. NatCen's Telephone Interviewing Unit attempted to contact them in order to invite them to take part in a short interview. Interviewing took place by telephone between May and August 2016. 1552 individuals took part in the survey, a response rate of 42%. The main reason for non-participation was failure to make contact, either because the original number was no longer valid or because calls were not answered.

Changes to gambling behaviour

- Change between baseline and follow-up in gambling participation in the past four weeks was the norm. Two fifths (39%) of participants had increased the number of activities they took part in; a slightly higher proportion (42%) had decreased the number of activities they undertook.
- People were also likely to change how often they participated in their most popular activity: 28% participated more often, and the same percentage participated less often.
- Older participants had more stable patterns of gambling participation, even though change was the norm for all age groups.
- Despite change in behaviour being the norm generally, past four week participation on machines in bookmakers was stable for the majority. Most people (76%) who played these machines previously continued to do so. Likewise, the majority of those had not played these machines previously still abstained (68%).
- However, about a third of those who not gambled on machines previously started to do so in the past four weeks. Equally, around a quarter of previous players stopped gambling on these machines.

-
- Those who were unemployed or who lived in the most deprived areas of England, Scotland and Wales were more likely to start gambling on machines in bookmakers than others. Likewise, the unemployed, those living in most deprived areas and those from non-White ethnic groups were more likely to increase their frequency of gambling on these machines. These groups are of interest as they are typically viewed as those more vulnerable to gambling problems.
 - Participants who started gambling on bookmakers machines in the past four weeks also tended to increase their engagement in other gambling activities (60%). Similarly, those who stopped gambling on machines in bookmakers also tended to reduce their participation in other forms of gambling (56%). In both cases, it seems unlikely that machine gambling is being substituted for other forms, or vice versa.
 - Almost a quarter of people who stopped gambling on machines in bookmakers increased their participation in other forms of gambling (24% of those who stopped gambling on these machines). Likewise, there were people who started to gamble on machines in bookmakers and stopped gambling on other things (13% of those who started gambling on these machines). These people may be more likely to be substituting one form of gambling for another; this would need to be explored in more detail with the gamblers themselves.

Changes to problem gambling status

- The evidence from this study suggests that stability in problem gambling prevalence rates over time masks a great deal of variation in the problem gambling status of individuals.
- Problem gambling status was measured by the Problem Gambling Severity Index (PGSI). Based on answers to nine questions, the PGSI categorises people as non-problem gamblers, low risk gamblers, moderate risk gamblers or problem gamblers.
- Nearly half of all participants changed their PGSI status at follow-up. This includes 6% who were non-problem, low risk or moderate risk gamblers at baseline and who became problem gamblers, as well as 9% who moved from being problem gamblers to a lower risk category. However, a majority (54%) of people maintained the same PGSI status, which was reflected in mean changes in PGSI score, being just 0.6 lower at follow-up than baseline.
- Nearly a third of non-problem gamblers (29%) at baseline had increased their PGSI scores so that they were, at least, low risk gamblers at follow-up, with 1% becoming problem gamblers.
- Around two in five problem gamblers (41%) had decreased their PGSI scores so that they were no longer classified as problem gamblers at follow-up, including 7% of problem gamblers at baseline who were non-problem gamblers at follow-up.
- Women, those aged 44-65 and those from Black/Black British minority ethnic groups were more likely to be classified as problem gamblers at follow-up than previously. The findings for women are particularly interesting as women are generally less likely to experience problems than men. It appears, however, that among loyalty card holders for bookmakers, women maybe more likely to experience problems with their gambling over time.
- Those from minority ethnic groups and with lower levels of personal income were more likely to have increased their PGSI scores than others. This is notable as

people from these groups have higher rates of problem gambling generally. An increased propensity for higher PGSI scores at follow-up suggests that these inequalities, especially among minority ethnic groups, are likely to be growing.

Predictors of problem gambling

- 6% of those who were not categorised as problem gamblers in the baseline survey had become problem gamblers at the time of the follow-up.
- Age, ethnicity and income were associated with the odds of becoming a problem gambler. Compared with younger age groups, those aged 25-34 and those aged 45-64 had increased odds. Increased odds of becoming a problem gambler were also found among those of Black/Black British ethnicity (compared to those of White/White British ethnicity). Those in the highest income quintile had reduced odds when compared with those in the lowest income quintile.
- There was no relationship between the number of activities undertaken at least once a week at baseline and the odds of subsequently becoming a problem gambler.
- There was no relationship between whether most gambling activities were undertaken at least once a week at baseline and the odds of becoming a problem gambler subsequently. There was a relationship between playing bookmakers machines at least once a week and increased risk of becoming a problem gambler. However, this finding must be treated with caution, given that the surveys are based on a sample of holders of bookmakers loyalty cards and are not representative of all gamblers or of the wider population.

Conclusions

- To date policy makers have tended to focus on comparing prevalence rates over time to assess how gambling behaviour is changing. When looking at prevalence rates alone, trends in gambling behaviour and gambling problems can appear stable. However, there is a great deal of behaviour change among individuals.
- In this study, people generally thought to be more vulnerable to gambling-related harm were those most likely to become problem gamblers or to increase their PGSI scores (those with low incomes or from non-White backgrounds). This both exacerbates existing inequalities and highlights the importance of focusing preventative action and policies on these groups.
- The gambling industry should carefully consider what actions they should take to further prevent these groups from experiencing harm, in line with licensing objectives and the Gambling Commission's recent emphasis on local area risk profiles.

1 Introduction and Background

1.1 Background to research including overview of policy changes

1.1.1 Background to research

Gambling machines in bookmakers have attracted a great deal of political, media and regulatory attention in recent years. This is partly due to the high stakes allowed on these machines, the content which is offered, the setting in which these machines are made available and the comparatively high proportion of people using these machines who have gambling problems. These elevated rates of problem gambling are broadly consistent over time, ranging from 11% of machine players in 2007 to 7% in 2012.¹ However, this overall stability masks a complex pattern of change. The experience of gambling problems over time is known to be fluid, with people moving in and out of problems. This fluidity is not reflected by a simple comparison of prevalence rates over time.

It is increasingly recognised that gambling behaviour can fluctuate and that patterns of problematic behaviour can change over time (Reith & Dobbie, 2013; LaPlante et al, 2008, Breen & Hing, 2014). Qualitative studies have highlighted how patterns of gambling behaviour can be intermittent and fluid and can be affected by social circumstances and life events (Slutske, Blaszczynski & Martin, 2009; Slutske, Jackson & Sher, 2003). Reith and Dobbie's (2013) longitudinal qualitative study of gambling behaviour over time emphasised this fluidity in gambling behaviours and highlighted the role of social networks, context and life events in the initiation, continuation and change of behaviours.

Other studies have quantitatively examined patterns of play. A recent study by Wardle & Philo (2014) re-interviewed machine players and non-machine players who were participants in the British Gambling Prevalence Survey (BGPS) 2010 and the respective Health Surveys for England (HSE) and Scotland (SHeS) 2012 to learn about the type of gambling these people were now engaged in. The study showed that patterns of machine gambling were not static, but changed over time.

More needs to be learned about movement in problematic behaviour over time, particularly within a British setting. Relatively little is known about which groups change their gambling behaviour and why, or the factors associated with increasing or

¹ These estimates are taken from the British Gambling Prevalence Survey 2007 and the Health Survey for England 2012, respectively. In each study, the number of people identified who played gambling machines in bookmakers was low. Consequently the difference between the estimates of machine players who were problem gamblers from the two studies is not statistically significant. However, in both studies, people who played machines in bookmakers had higher rates of problem gambling than those who took part in many other activities.

decreasing gambling problems. This requires longitudinal information which tracks the same people over a period of time.

In 2014, a survey of people who held a loyalty card for one of three major bookmakers was conducted. At the end of that study (called the baseline study hereafter), participants were asked if they would be willing to take in future research. This current study follows up these people some two years later to see how their gambling behaviour has changed.

1.1.2 Overview of policy changes

Since the original baseline study was conducted in 2014 there have been a number of changes in policy, regulatory and social responsibilities practices. The ones most pertinent to this study include:

- New limitations on how maximum stakes on machines in bookmakers are placed. Introduced in April 2015 this limited the way people could place higher stakes bets. There are now two options if people want to place stakes of £50.01 or more on machines in bookmakers, they must either place the bet over the counter with a member of staff or use a validated account which allows their play to be tracked. Preliminary evaluation of this initiative showed that fewer bets of £50 or more were placed than previously. It was speculated that people preferred to bet at slightly lower amounts (less than £50) and retain their anonymity than sign up for an account, which tracks their play.
- Publication of the Association of British Bookmaker's Responsible Gambling Code, 2015. This builds on ABB's 2013 Code of Conduct for Responsible Gambling. The 2015 code includes a number of elements, the most pertinent of which is the mandatory requirement for all ABB members to allow machine players to be able to set money and time limits on their play, along with the mandatory display of responsible gambling messages once someone has played for 30 minutes or had spent £250 in a single session. The code also includes various other commitments around responsible gambling messages, self-exclusion and advertising.
- Implementation of the ABB's Player Awareness System for verified account holders. This system uses behavioural algorithms to identify potentially harmful gambling behaviour and sends alerts (via text message, email or on screen) to gamblers about their play.
- Launch of the high profile 'when the fun stops, stop' campaign.

All of these initiatives are disproportionately likely to impact upon follow-up study participants, who were highly engaged users of machines in bookmakers, as evidenced by their owning one or more loyalty cards.

1.1.3 Baseline study

The baseline survey was conducted in 2014 as part of Responsible Gambling Trust's (now called GambleAware) machines research programme. This aimed to examine

whether industry data generated by machines in bookmakers could be used to distinguish between harmful and non-harmful patterns of play.

To do this, a survey of people who held a loyalty card for Ladbrokes, William Hill or Paddy Power and had gambled on machines in bookmakers in the preceding six months was conducted. The survey included questions about gambling behaviour and questions which measured whether someone was a problem gambler or not. Permission was sought to link participants' survey data with their loyalty card data. This linked data was then analysed by Featurespace and RTI International to see if it was possible to predict who was a problem gambler by looking at industry data alone.

The baseline study showed that people who signed up for a loyalty card from a bookmaker's were heavily engaged in gambling. Compared with machines players identified in the British Gambling Prevalence Survey 2010, loyalty card holders were more likely to gamble at least once a week and to take part in more forms for gambling. They were also more likely to be of non-White ethnic origin and to live in deprived areas. Therefore, participants in both the baseline survey and this current follow-up are not representative of all gamblers on machines in bookmakers but of a subset of very engaged gamblers: those who held a loyalty card for a bookmaker in 2013/14.

1.2 Aims and objectives

There is significant policy and public interest in people who play machine in bookmakers and their patterns of gambling behaviour. This study was commissioned to build on the insight of the baseline study by following up participants two years later to:

- explore changing patterns of gambling behaviour over time,
- examine changes in problem gambling behaviour, and
- identify who is more likely to change problem gambling status.

This report presents headline findings from the follow-up survey, documents the survey process, gives an overview of gambling behaviour changes and highlights some caveats of the research.

1.3 Overview of methodological approach

This section gives a brief overview of the methods used for the follow-up survey; full technical details are provided in Appendix B.

This study was a follow-up to the 2014 survey of bookmakers loyalty card holders, based on a sample of 4727 participants: the 'baseline' study (see Wardle et al, 2014).² 3988 participants (84%) from the baseline study agreed to be re-contacted about future research and provided contact details; these formed the sample for the follow-up.

The sample was cleaned and cases where a forename, surname, address and mobile number were not available were excluded from the sample. In total 3738 cases were

² The sample for the 2014 survey comprised 27,565 loyalty card holders; the response rate was between 17% and 19% once ineligible individuals had been taken into account.

issued in the final sample. An advance letter was sent to participants and they were able to opt out by calling the Freephone number provided. Just four potential participants (<1%) opted out of the study.

Fieldwork was conducted between May and August 2016. This timing was the same as the baseline study to reduce the potential for any seasonal effects. Participants were contacted by NatCen's specialist Telephone Interviewing Unit.

All data were collected using computed assisted interviewing methods. The questionnaire covered the following topics:

- engagement in a range of gambling activities in the past four weeks;
- frequency of gambling participation for each activity;
- problem screening questions;
- impact of changes in industry practice such as machine messaging and staff-customer interaction
- cognitive ability and thinking styles;
- demographics;
- permission for data linkage.

Much of the questionnaire was a repeat of the questions used previously and the order in which the questions were asked replicated the baseline study. The questionnaire took 25 minutes to complete on average. All participants who completed the questionnaire were sent a £5 Post Office voucher to thank them for their time. Ethical approval to conduct the study was obtained from NatCen's independent Research Ethics Committee.

Overall, 1552 people took part in the study. Taking into account those who were identified as ineligible to participate during the interview process, the response rate for this study was 42%. This means that more people did not take part in the study than those who did. This introduces the potential for non-response bias, as those who did take part may be different from those who did not. All analysis was weighted to try to account for this bias and to adjust the survey results to take into account the unequal probability of participation. Full details of the response rate calculations and weighting strategy are given in Appendix B.

1.4 Profile of respondents

The socio-demographic and economic profiles of baseline and follow-up participants after weighting are compared in Table A1.1. Overall, 88% of participants at follow-up were men and 12% were women, the same as the baseline study. The age profile of participants remained fairly consistent between baseline and follow-up, allowing for the fact that participants were two years older for the latter. The other population characteristics such as area of residence, ethnicity and employment status also remained consistent between the surveys.

(Table A1.1)

1.5 Limitations

There are several limitations that need to be taken into account.

- The response rate was relatively low, and whilst weighting has attempted to adjust for potential non-response biases, we are restricted to the characteristics collected within the baseline study, which were fairly limited.
- Those who took part in both the baseline and follow-up surveys are heavily engaged in gambling. They have a younger profile and live disproportionately in deprived areas. These are characteristics typically associated with greater risk of gambling problems. These findings are not surprising, as this is a survey of people who signed up for a loyalty card, therefore one would expect them to be more heavily engaged in gambling. The findings from this survey, however, should not be extrapolated to all machine players, as loyalty card customers represent only one segment of the player base.
- All gambling behaviour analysed in this report is based on self-reported responses to survey questions with attendant issues about honest reporting.

1.6 Structure of report

This headline report presents the following:

- exploration of changes in participant's gambling participation including prevalence, number of activities and frequency of play (Chapter 2);
- examination of changes in participants gambling on machines in bookmakers (Chapter 2);
- analysis of changes in problem gambling status including movement between categories and mean movement in scores (Chapter 3);
- examination of predictors of change in problem gambling status (Chapter 4); and
- summary of key findings (Chapter 5).

1.7 Report conventions

The following conventions are used in this report.

- The data used in this report have been weighted. The weighting strategy is described in Appendix A. Both weighted and unweighted base sizes are shown at the foot of each table. The weighted numbers reflect the relative size of each group of the population, not the number of interviews achieved, which is shown by the unweighted base.
- Tables are presented in Appendix A at the end of this report.
- Unless otherwise stated, the tables are based on the responding sample for each individual question (i.e., item non-response is excluded): therefore bases may differ slightly between tables.
- The group to which each table refers is shown in the top left hand corner of each table.

-
- The following conventions have been used in the tables:
 - - No observations (zero values)
 - 0 Non-zero values of less than 0.5% and thus rounded to zero
 - [] An estimate presented in square brackets warns of small sample base sizes. If a group's unweighted base is less than 30, data for that group are not shown. If the unweighted base is between 30 and 49, the estimate is presented in square brackets.
 - * Estimates not shown because base sizes are less than 30.
 - Because of rounding, row or column percentages in the tables may not exactly add to 100%.
 - A percentage may be presented in the text for a single category that aggregates two or more percentages shown in the table. The percentage for that single category may, because of rounding, differ by one percentage point from the sum of the percentages in the table.
 - Some questions were multi-coded (i.e., allowing the respondent to give more than one answer). The column percentages for these tables sum to more than 100%.
 - The term 'significant' refers to statistical significance (at the 95% level) and is not intended to imply substantive importance.
 - Only results that are significant at the 95% level are presented in the report commentary.

2 Changes in gambling participation

2.1 Introduction

As with the baseline survey, all participants were asked whether they had engaged in one of 19 different forms of gambling activity in the past four weeks. The activities represented all forms of gambling legally available in Great Britain and mirrored those included in the health surveys for England and Scotland. Those who had taken part in an activity in the past four weeks were asked how often they engaged in that activity. The choice of a four-week reference period was deliberate to reduce participant burden; loyalty card holders are highly engaged gamblers and take part in a large number of activities.

This chapter compares past four week participation at baseline and follow-up to explore behavior change among individuals. It also looks at changes in gambling on machines in bookmakers specifically.

2.2 Changes in gambling participation

2.2.1 Changes in gambling participation: specific activities

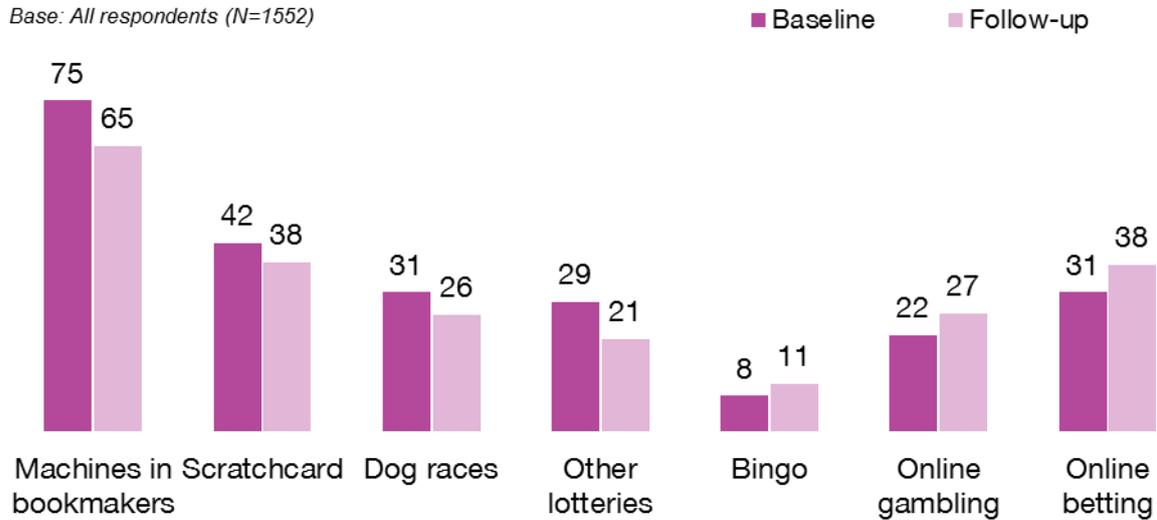
Table A2.1 shows participation in a range of gambling activities in the past four weeks both at baseline and follow-up. In both studies, gambling on machines in bookmakers was the most popular activity followed by playing the national lottery, betting on horse races and betting on other sports.

There were, however, some significant changes in past four week participation between the two studies (see Figure 2.1). The most notable change was a reduction in past four week participation on machines in bookmakers, falling from 75% of participants at baseline to 65% at follow-up. Other activities which were less popular at follow-up were other lotteries (29% at baseline; 21% at follow-up), scratchcards (42% baseline; 38% follow-up) and betting on dog races (31% baseline; 26% follow-up). Some activities were more popular among participants at follow-up than previously. These included gambling online on casino, bingo or slot machine style games (22% baseline; 27% follow-up), playing bingo in a club (8% baseline; 11% follow-up) and online betting (31% baseline; 38% follow-up). For all other activities, rates of participation in the past four weeks were broadly similar between the two studies.

(Figure 2.1, Table A2.1)

Figure 2.1 Change in past four week gambling participation

Base: All respondents (N=1552)



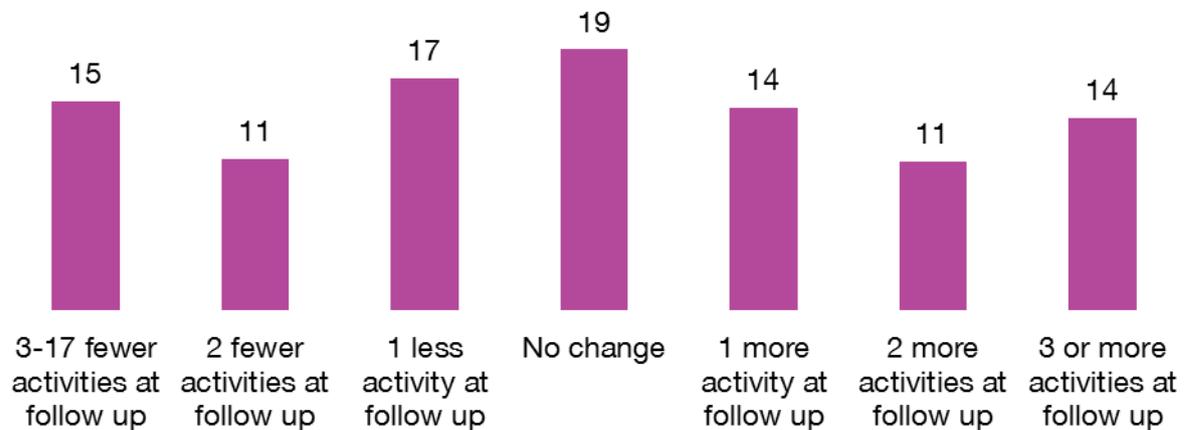
2.2.2 Changes in gambling participation: number of activities in the past four weeks

Although the average number of activities undertaken in the past four weeks did not vary overall between baseline and follow-up, this masks a great deal of individual variation (see Figure 2.2). Only a minority of people gambled on exactly the same number of activities at baseline and follow-up (19%). The majority either increased the number of activities they engaged in (39%) or decreased the number of gambling activities undertaken in the past four weeks (42%). In short, stability in the number of gambling activities undertaken in the past four weeks was not the norm.

(Figure 2.2, Table A2.2)

Figure 2.2 Change in number of gambling activities undertaken in the past four weeks

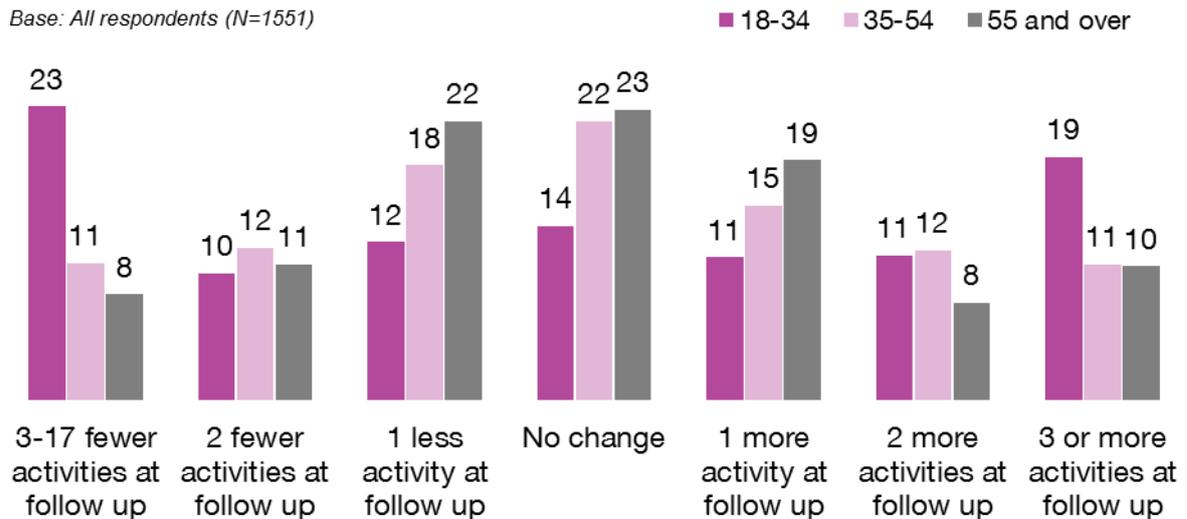
Base: All respondents (N=1551)



Those aged 35 and over were more likely than those aged 18-34 to gamble on the same number of gambling activities at both baseline and follow-up (22-23% vs 14%). Older participants, therefore, had somewhat more stable patterns of gambling involvement than younger participants, even though change was the norm for all age groups.

(Figure 2.3)

Figure 2.3 Change in number of gambling activities undertaken in the past four weeks, by age group



2.2.3 Changes in gambling frequency: most frequent gambling activity

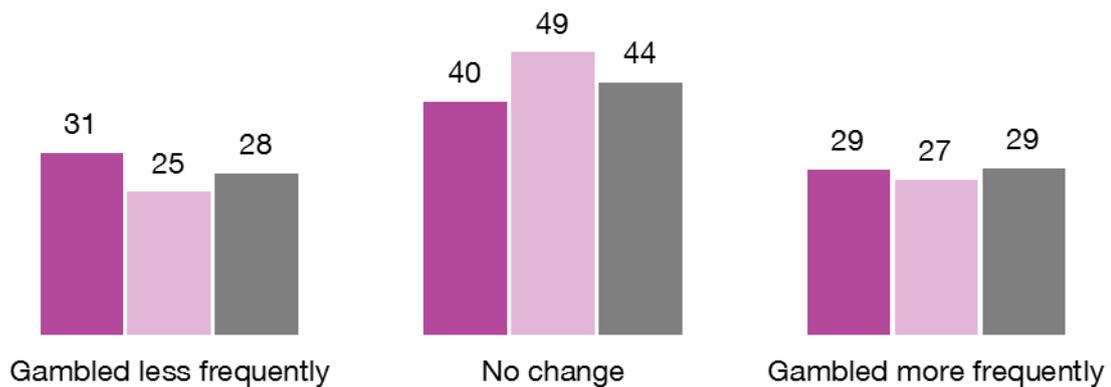
All participants who had taken part in a particular activity in the past four weeks were asked how often they gambled on that activity. The most frequent activity in which a participant engaged was identified from all responses.

Table A2.3 shows changes in gambling frequency for the most popular activity between baseline and follow-up. There was considerable variation in gambling frequency between the two studies. For example, 44% of those who gambled every day on their most frequent activity at baseline no longer did so at follow-up. 70% of those who gambled less than once a week on their most frequent activity at baseline gambled more often than this at follow-up, with 12% now gambling every day.

Overall, 44% of participants had the same frequency of gambling on their most popular activity between baseline and follow-up. A further 28% increased their gambling frequency whilst 28% decreased their gambling frequency.³ These patterns were similar regardless of age or sex, meaning that change in gambling frequency was the norm for men, women, younger and older participants alike.

(Figure 2.4, Tables A2.3, A2.4)

Figure 2.4 Change in gambling frequency (on most frequent activity), by age group
Base: All respondents (N=1551) ■ 18-34 ■ 35-54 ■ 55 and over



2.3 Change in gambling participation on machines in bookmakers

2.3.1 Past four week participation

As seen earlier, fewer participants gambled on machines in bookmakers in the past four weeks than previously. This too masks a variety of change among individuals. For example, 76% of those who gambled on machines in bookmakers in the past four weeks at baseline also did so at follow-up, meaning that 24% of previous machine gamblers had not played these machines at follow-up. Of those who had not gambled on these machines previously, 32% had done so at follow-up.

(Table A2.5)

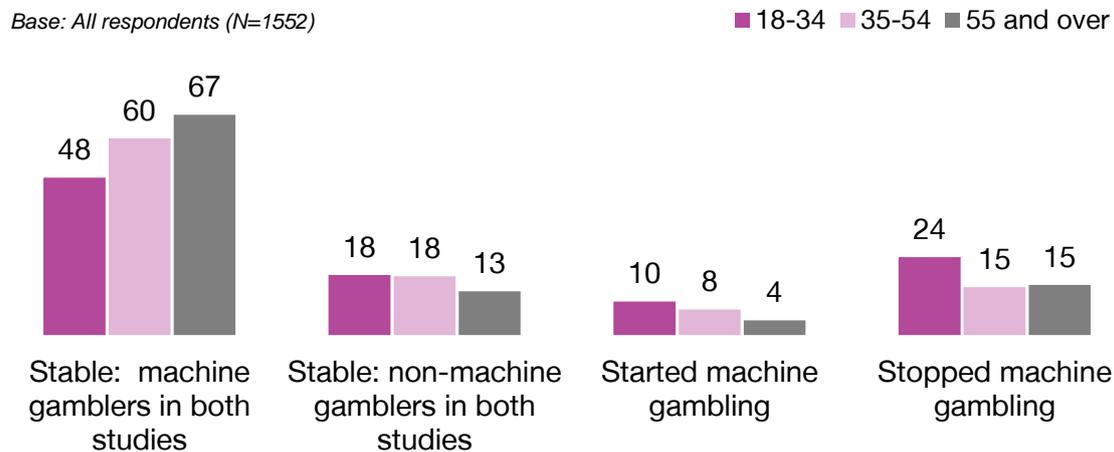
³ This information was collected using a grouped response variable. Responses were every day; 4-5 days per week, 2-3 days per week, about once a week, less often than once a week. An increase or decrease in frequency means changing response group, like moving from 4-5 days per week to everyday. Some people may be misclassified as stable frequency even though they have actually changed frequency of participation. For example, someone moving from 4 to 5 days per week would be classified as stable frequency as this range is covered by the same response group in both studies. Our analysis of movement in frequency of play is therefore likely to be conservative.

Whilst there was broad stability for the majority, more than a quarter increased or decreased their engagement. Overall, 56% of participants gambled on machines in bookmakers in the past four weeks at both baseline and follow-up. A further 17% of participants had not gambled on these machines at either baseline or follow-up (called stable machine players hereafter). 18% of participants had not gambled on these machines in the prior four weeks at follow-up even though they had done so at baseline (called stoppers hereafter) and 8% had gambled on these machines at follow-up even though they had not done so previously (called starters hereafter).⁴

Those aged 18-34 were less likely than other age groups to have stable patterns of machine participation. This was mainly because they were more likely to have stopped gambling on these machines in the past four weeks than older age groups (see Figure 2.5).

(Figure 2.5, Tables A2.6)

Figure 2.5 Change in past four week participation on machines in bookmakers, by age group



Rates of past four week machine participation change did not vary by ethnicity or income. This means that those from non-White ethnic groups or with the lowest incomes were just as likely to start or stop gambling on these machines as those from White backgrounds or with higher incomes. (Data not shown).

However, as Figures 2.6 and 2.7 show, rates of starting gambling on these machines in the past four weeks varied by economic activity and area deprivation. Compared with employed participants, those who were unemployed at baseline were twice as likely to have started gambling on machines in bookmakers at follow-up (8% vs 16%). Likewise, 13% of those living in the most deprived areas of England, Scotland or Wales at baseline started to gamble on these machines at follow-up compared with 6% for those living in less deprived areas.

(Figures 2.6, 2.7, Table A2.7)

⁴ The term stoppers and starters refers only to comparisons in past four week behaviour. People may still play these machines but we only collected information about what was done in the four weeks prior to interview. This is a proxy for regular engagement but may miss some other important changes. Therefore, this analysis is also likely to be a conservative representation of change.

Figure 2.6 Change in past four week participation on machines in bookmakers, by economic activity

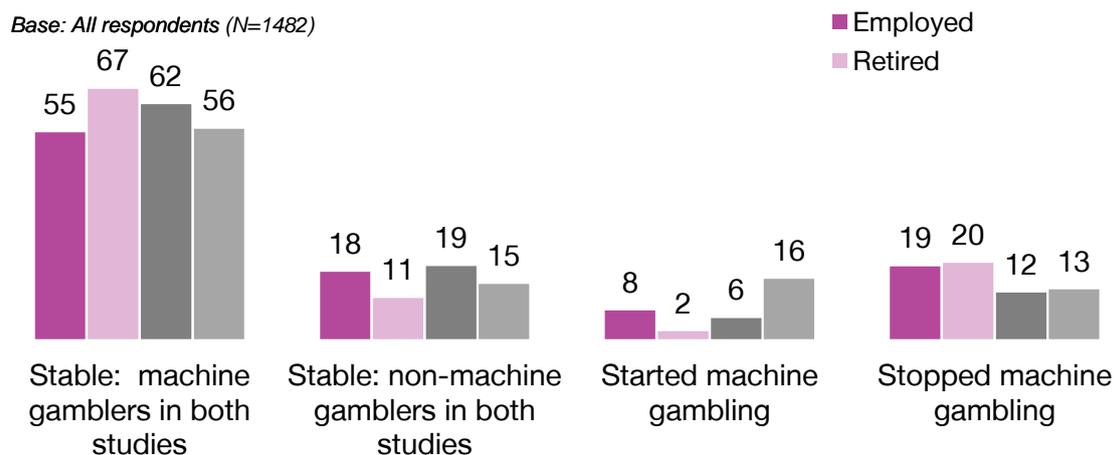
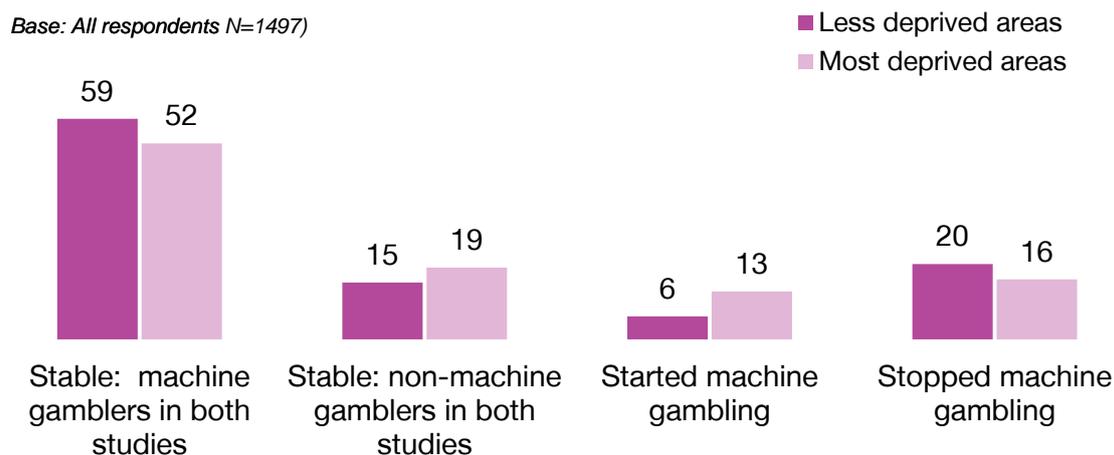


Figure 2.7 Change in past four week participation on machines in bookmakers, by area deprivation



2.3.2 Frequency of gambling on machines

Table A2.8 compares frequency of playing machines in bookmakers at baseline with frequency of play at follow-up. There was considerable change in frequency of gambling on these machines. For example, 71% of those who gambled every day on these machines at baseline played them less often at follow-up, with 26% gambling on these machines less than once a week. Some participants increased their frequency of gambling on these machines. For example, 24% of those who had gambled on these machines about once a week at baseline now played them more often.

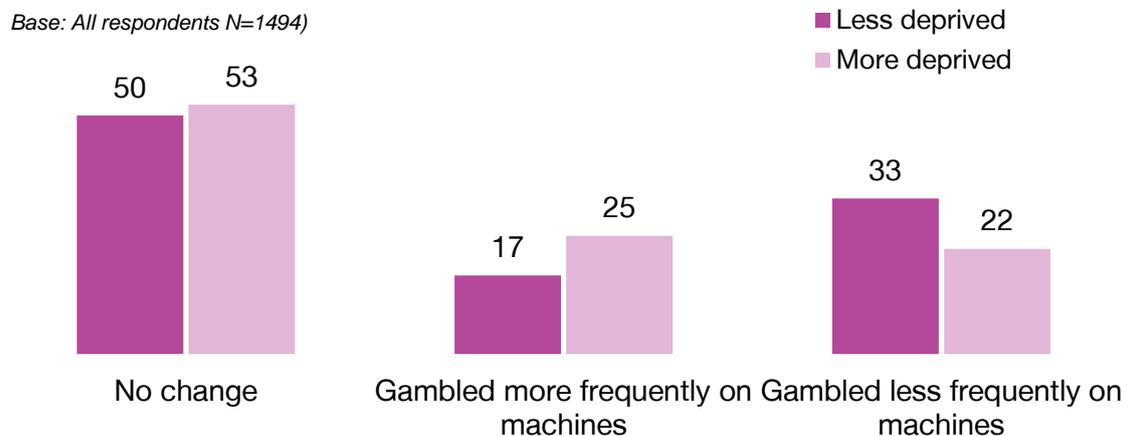
Overall, 52% of participants gambled on machines in bookmakers with similar frequency at baseline and follow-up. However, 19% gambled on these machines more frequently and 29% gambled on them less frequently than previously.

(Table A2.8)

Change in machine play frequency did not vary by age or income but did vary by ethnicity, area deprivation and economic activity. Those from non-White ethnic groups (29%) were more likely to have increased their machine play frequency than those from White backgrounds (17%). Those living in the most deprived areas in England, Scotland and Wales (25%) and those who were unemployed (28%) or economically inactive because of a long term sickness (31%) were more likely to have increased their machine play frequency than those living in the least deprived areas (17%) or those who were in paid employment (17%).

(Figure 2.8, Table A2.9)

Figure 2.8 Change in past four week participation on machines in bookmakers, by area deprivation



2.3.3 Change in engagement in other activities

Table A2.10 shows the relationship between changes in the number other gambling activities undertaken and changes in the level of participation in gambling on machines in bookmakers. To do this, the total number of other gambling activities undertaken (excluding machines in bookmakers) in the past four weeks at both baseline and follow-up was calculated. The number of other activities undertaken at baseline was subtracted from the number undertaken at follow to show whether people had increased or decreased the range of other gambling activities engaged in.

For all types of machine gamblers, ranging from those with stable participation to stoppers and starters, there was notable change in the number of other gambling activities also undertaken. Of those who gambled on machines in both waves, 42% increased their engagement in other forms of gambling and 38% decreased their engagement. Figure 2.9 shows increased and decreased engagement in other forms of gambling for those who stopped and started playing machines in bookmakers.

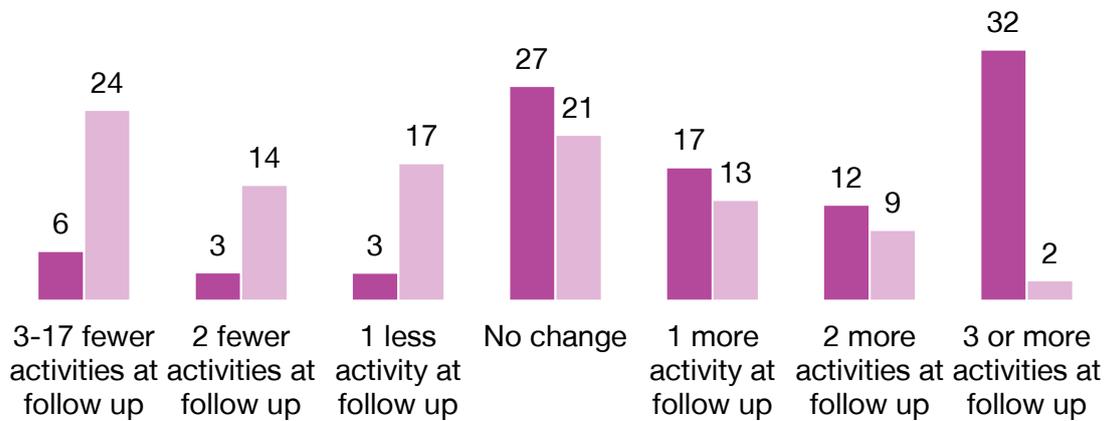
Broadly speaking, those who stopped gambling on machines in bookmakers also tended to reduce the other forms of gambling they engaged in (56%), though a minority (24%) increased their participation in other forms of gambling despite not gambling on machines in bookmakers anymore. Those who started gambling on machines in bookmakers also tended to increase the number of other gambling activities undertaken (60%), though 13% decreased the number of other forms of gambling engaged in despite starting to play machines in bookmakers.

(Figure 2.9, Table A2.10)

Figure 2.9 Change in past four week participation on other gambling activities, by change in machine participation

Base: Respondents whose frequency of machine play changed (N=333)

■ Started to gamble on machines
 ■ Stopped gambling on machines



3 Changes in problem gambling

3.1 Introduction

A key aim of this study was to examine the extent to which problem gambling behaviour changed over time. It is increasingly recognised that patterns of gambling behaviour varies and that stasis is not the norm (Reith & Dobbie, 2013).

In the baseline study, problem gambling was measured using the Problem Gambling Severity Index (PGSI). Based on responses to nine questions, participants are given a PGSI score between 0 and 27. A score of 0 is classified as non-problem gambling, a score of 1-2 is low risk gambling, 3-7 is moderate risk gambling and 8 or more is classified as problem gambling. In the follow-up study, problem gambling scores were also collected using the PGSI. The questions were administered in the same way as previously and were asked at the same point in the questionnaire to minimise the risk of differences in scores being due to the way the questions were asked.

This chapter looks at movement and stability in problem gambling in two ways. The first looks at the proportion of people who were classified as non-problem, low risk, moderate risk and problem gamblers in the baseline study and whether people still belonged to these respective groups at follow-up. The second looks at changes in PGSI scores overall and identifies groups of people whose PGSI scores increased and those whose scores decreased, regardless of their problem gambling status. For both, variations by socio-demographic and economic status are presented.

3.2 Caveats

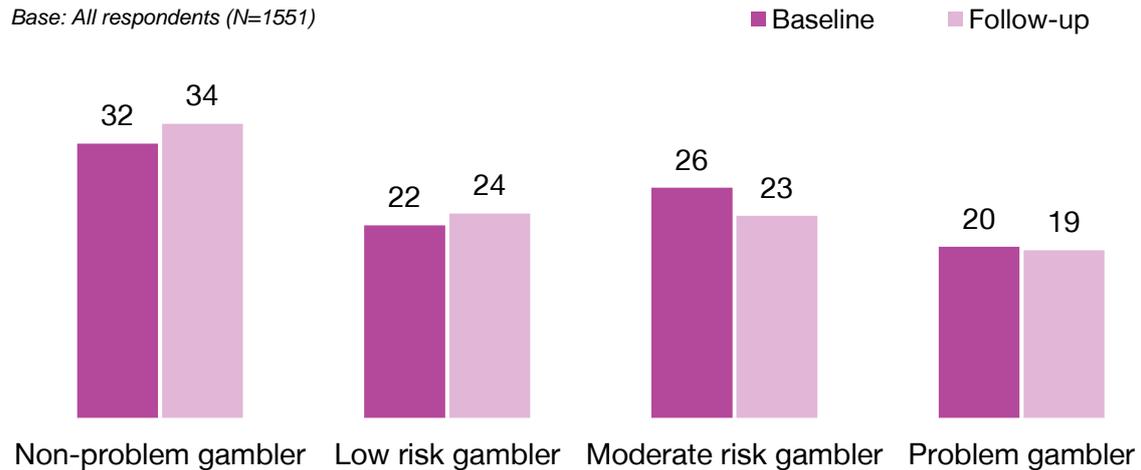
No measure of problem gambling is perfect and will be subject to some errors in reliability when asked of the same people at different points in time. The same is true of the PGSI. This means when repeating the PGSI questions in this follow-up study it is possible that changes observed are a not a reflection of real changes in behaviour but of measurement error. A key consideration when repeating measures like the PGSI over time with the same people is regression to the mean. Regression to the mean is a statistical phenomenon that can make variation in measures over time look like real change (Barnett et al, 2005). It means that extreme measures (such as very high PGSI scores) are likely to be closer to average the second time they are measured. This is discussed further in Appendix C.

3.3 Changes in problem gambling status

Figure 3.1 shows problem gambling prevalence at baseline and follow-up for all participants. As can be seen, rates are very similar between the two studies (20% of participants were problem gamblers at baseline and 19% were problem gamblers at follow-up). However, this masks a great deal of variation for individuals.

(Figure 3.1, Table A3.1)

Figure 3.1 Problem gambling rates at baseline and follow-up



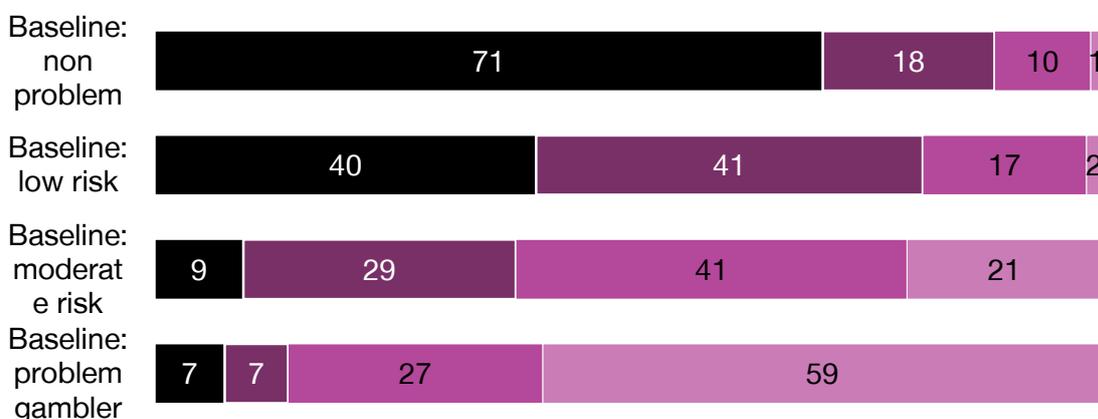
Overall, 54% of participants had the same status at baseline and follow-up. Others were more likely to reduce than increase their status level; 28% had reduced their problem gambling risk, compared with 18% who had increased their risk category. Figure 3.2 shows PGSI classification at follow-up for non-problem, low risk, moderate risk and problem gamblers at baseline. Looking at non-problem gamblers first, 71% of those who were non-problem gamblers at baseline remained non-problem gamblers at follow-up. This means 29% of non-problem gamblers had increased their PGSI score at follow-up so that they were now, at least, classified a low risk gambler (18%), with 1% increasing their PGSI scores so that they were classified as problem gamblers at follow-up.

(Figure 3.2, Table A3.2)

Figure 3.2 PGSI status change at follow-up

Base: All respondents (N=1551)

- Follow-up: non problem
- Follow-up: low risk
- Follow-up: moderate risk
- Follow-up: problem gambler



Among low risk and moderate risk gamblers, movement between categories between baseline and follow-up was the norm. Of low risk gamblers, 59% either increased or decreased their PGSI score at follow-up so that they were no longer classified as a low risk gambler, with 2% increasing their scores so that they were classified as a problem gambler. Low risk gamblers whose status changed were more likely to move towards non-problem gambling (40%) than moderate risk or problem gambling (19%). Of moderate risk gamblers, 21% increased their PGSI score and were classified as problem gamblers at follow-up whereas 38% decreased their PGSI scores and were classified as low risk or non-problem gamblers subsequently.

Finally, 59% of problem gamblers at baseline remained problem gamblers at follow-up. This meant that 41% of baseline problem gamblers decreased their PGSI scores so that they were no longer classified as problem gamblers at follow-up. The majority of this group moved into the moderate risk gambler group (27%) but 7% were classified as non-problem gamblers.

This highlights the range of movement in problem gambling status at follow-up. For non-problem gamblers, stability in behaviour was the norm but around three in ten increased their PGSI scores. Likewise, among problem gamblers, maintenance of problems was broadly the norm but there were decreases in PGSI scores for some.

Because of the number of PGSI status combinations between baseline and follow-up (16 in total), these movements have been summarised as follows:

- those for whom categorisation stayed the same (called stable PGSI gamblers hereafter)
- those who were non-problem or low risk gamblers at baseline and whose scores at follow-up increased their PGSI status (called non-problem/low risk: increasers hereafter)

- those who were moderate risk or low risk gamblers at baseline and whose scores at follow-up decreased their PGSI status (called moderate risk/low risk: decreasers hereafter)
- those who became problem gamblers at follow-up (called became problem gamblers hereafter) and
- those who were problem gamblers at baseline but were not at follow-up (called stopped being problem gamblers hereafter).

Figure 3.3 shows the proportions of men and women falling into each category. **(Figure 3.3, Table A3.3)**

Figure 3.3 Change in PGSI status, by sex



Overall, the majority of people had a stable PGSI status between baseline and follow-up (54%). However, nearly half changed status, including 6% of respondents who became problem gamblers at follow-up and 9% of respondents who moved out of problem gambling status. Looking only at those who were non-problem gamblers at baseline (i.e. excluding stable problem gamblers), the proportion who became problem gamblers at follow-up was slightly higher, with 7% of non-problem gamblers becoming problem gamblers (6% for men and 13% for women).

The pattern varied significantly for men and women; women were more likely than men to become problem gamblers (11%, compared with 5%) whilst the proportion moving out of problem gambling was similar for men and women (10% and 7% respectively).

3.4 Changes in problem gambling status by socio-economic factors

Change in PGSI status was examined by age, ethnic group, educational qualifications, employment status, personal income and whether someone lived in one of the most deprived areas in England, Scotland or Wales.⁵ Prevalence rates of becoming a problem gambler varied by age and ethnicity whereas rates of stopping being a problem gambler varied only by educational status.

(Table A3.3)

Those aged 18-24 at baseline were least likely to become problem gamblers at follow-up (0.5%) whereas those who were aged 45-64 were more likely to have become problem gamblers (8-11%). These patterns are interesting as the youngest age group at baseline were less likely to be problem gamblers generally (prevalence rates were 17% for those aged 18-24 vs 25-29% for those aged 24-54) and appear to be less likely to develop gambling problems.

Looking at ethnicity, those from Black/Black British backgrounds were more likely to become problem gamblers than those from other ethnic groups (see Figure 3.4). This too is notable as those from Black/Black British groups had, along with those from Asian/Asian British backgrounds, had higher rates of problem gambling to start with (38% Black/Black British, 50% for Asian/Asian British vs 15% for those from White/White British backgrounds).

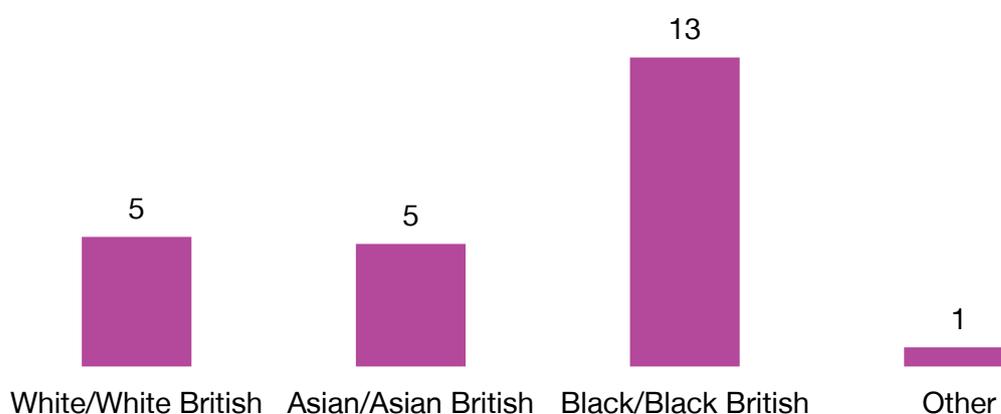
Whilst rates of stopping being a problem gambler did not vary significantly by ethnic group, it is notable that 14% of those who were Black/Black British moved from problem gambling status to another category at follow-up. Nonetheless, higher baseline rates of problem gambling and increased rates of moving into problem gambling at follow-up suggest that loyalty card holders who are Black/Black British are at increased risk experiencing gambling problems.

(Figure 3.4)

⁵ With the exception of education, this analysis used classification at baseline when assessing PGSI status change.

Figure 3.4 Percentage of respondents becoming a problem gambler, by ethnic group

Base: All respondents (N=3004)



The only variation in rates of stopping being a problem gambler was by educational attainment, and then with no clear pattern. Rates of moving out of problem gambling were higher among those with the highest levels of educational attainment (13% for those with a professional qualification, 11% for those with a degree or higher) and among those with no/other qualifications (11%).

Finally, whilst rates of starting or stopping gambling did not vary by employment status, stability in PGSI status did. Those who were unemployed (63%) or were other economically activity (such as being a student or looking after the family/home) had the highest rates of stable PGSI status (63% and 66% respectively).

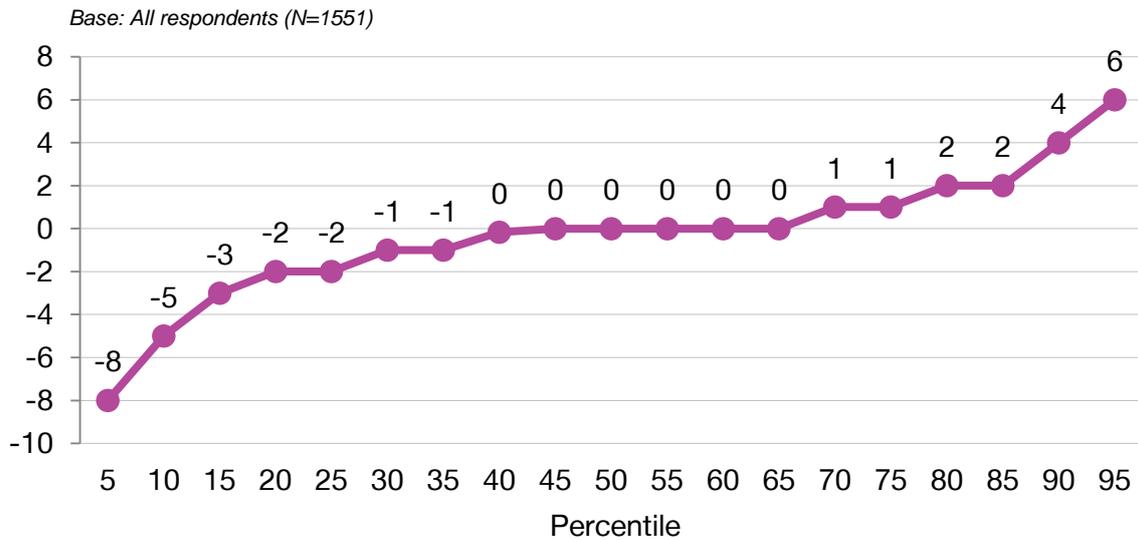
With respect to unemployment, this is notable as those who were unemployed had the higher rates of at-risk and problem gambling prevalence at baseline (39% vs 21% for those who were employed) and lowest rates of non-problem gambling (21% vs 31% for those who were employed). Relatively higher rates of stable PGSI status suggests that those who are unemployed should still be considered at risk for the maintenance of gambling problems.

3.5 Changes in problem gambling scores

In addition to looking a movement between PGSI categories, we also look at changes in PGSI scores overall. Figure 3.5 shows the distribution of changes in PGSI scores overall (subtracting scores at baseline from scores at follow-up). Minus values mean that scores at follow-up are lower than at baseline whereas positive values mean that scores at follow-up were higher than at baseline.

(Figure 3.5)

Figure 3.5 Change in PGSI scores between follow-up and baseline



Overall, the mean change in PGSI scores between follow-up and baseline was -0.6 meaning that PGSI scores were marginally lower at follow-up than baseline. The median change in PGSI scores was 0. For nearly half of all respondents, the change in PGSI score between follow-up and baseline was less than +/- 1. Around 10% of respondents increased their PGSI score by four or more and between 10-15% of respondents decreased their PGSI score by four or more.

A change score of 1 on the PGSI instrument means changing a single response to one of the nine questions from either never to sometimes, sometimes to most of the time or most of the time to always. This may not represent real behaviour change but rather measurement variability.

In order to better identify people whose change in PGSI scores were more likely to reflect behaviour change, those whose scores were +/- one standard deviation from the mean (4.6) were categorised as PGSI increasers or PGSI decreaseers. This resulted in 8% of respondents being categorised as having increased their PGSI score, 11% as reduced their PGSI score and 82% as neither.⁶

As with changes in PGSI status, changes in PGSI scores were examined by age, sex, educational attainment, ethnicity, employment status, income and area deprivation. The proportion of respondents who reduced their PGSI score did not significantly vary by any of these factors, neither did mean PGSI scores.

(Table A3.4)

⁶ Vladimirov et al (2015) have taken a similar approach when looking at changes in units of alcohol consumed. See Vladimirov D, Niemelä S, Auvinen J, Timonen M, Keinänen-Kiukaanniemi s, Ala-Mursula L, Laitinen J, Miettunen J. 2015. Changes in alcohol use in relation to sociodemographic factors in early Midlife. *Scandinavian Journal of Public Health*. 1-9.

However, rates of increasing PGSI scores varied significantly by ethnicity and income (see Figures 3.6 and 3.7 respectively). Those from non-White British ethnic backgrounds (between 15-20%) were more likely to have increased their PGSI scores than those who were White/White British (6%). With regards to income, the proportion of respondents who increased their PGSI score increased as personal income decreased, ranging from 14% for those with the lowest income to 5% for those with the highest income.

(Figures 3.6, 3.7)

Figure 3.5 Increase in PGSI, by ethnic group

Base: All respondents (N=1549)

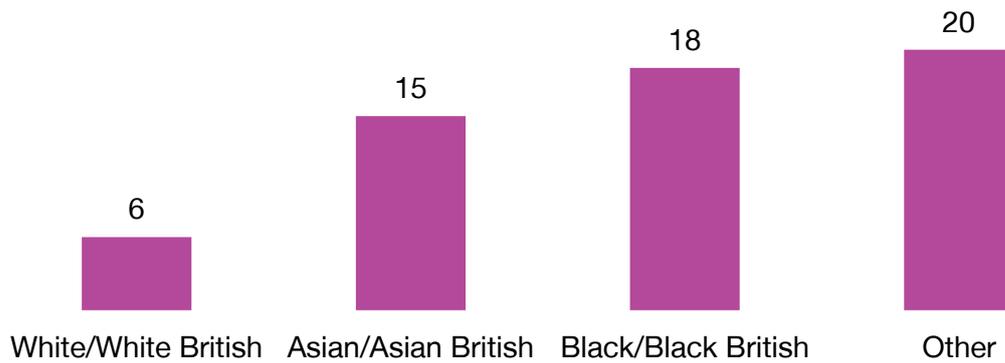
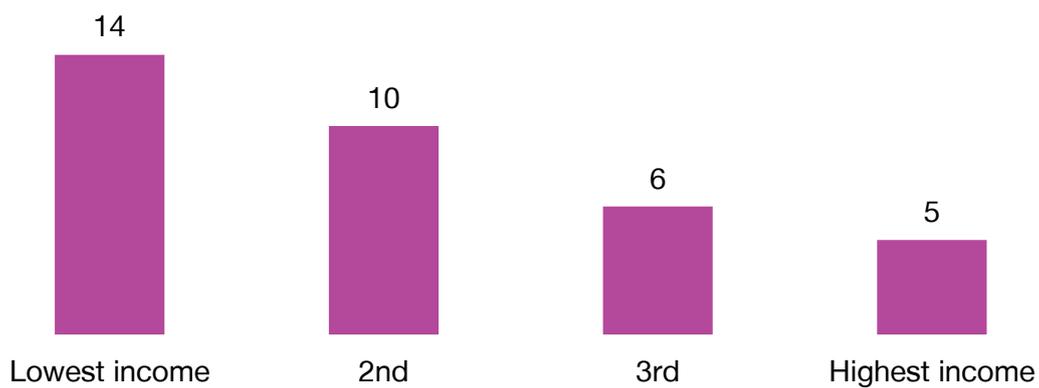


Figure 3.7 Increase in PGSI, by personal income quartile

Base: All respondents (N=1421)



4 Predictors of problem gambling

4.1 Introduction

Chapter 3 of this report examines how problem gambling behaviour changed in the two years between the baseline survey in 2014 and the follow-up in 2016. Using the Problem Gambling Severity Index (PGSI) it compared the problem gambling scores of participants to assess how much problem gambling status changes over time. Among individuals who responded to both surveys, there was stability overall in the proportions categorised as non-problem, low risk, moderate risk and problem gamblers, but this masked changes in problem gambling status among a substantial minority of participants. These changes were in both directions, representing both increasing and decreasing problem gambling scores, and included a small proportion of participants (6%) who had moved from a lower risk category to become problem gamblers in the follow-up study.

This chapter examines the characteristics at baseline that were associated with an increased risk of becoming a problem gambler at the follow-up study. The analysis uses multivariate regression models in order to control for underlying associations between individual characteristics. For example, age and ethnicity may each be associated with an increased risk of becoming a problem gambler. But different ethnic groups within the sample have different age profiles. Multivariate regression models enable the effects of each characteristic to be assessed independently, by controlling for the impact of other characteristics in the model.

Similar analyses are also used to explore possible associations between gambling activities at baseline and becoming a problem gambler at the time of the follow-up study.

The analysis is based on participants who were not problem gamblers at the time of the baseline survey, 77% of the follow-up sample, of whom 7% had become problem gamblers by the time of the follow-up.⁷

4.2 Socio-economic factors associated with becoming a problem gambler

Seven different factors were entered simultaneously into the model: sex; age; ethnicity; educational attainment; employment status; income; and area deprivation. Table A4.1 shows the factors associated with becoming a problem gambler at the follow-up. Only factors that were significant in the final model are shown in the table. Odds ratios are shown for each category of the independent variables. These odds are expressed in

⁷ There were insufficient women who had become problem gamblers in the sample to enable separate models to be run for men and women, and some categories for specific characteristics were grouped for the same reason.

relation to a reference category; an odds ratio of 1 or more indicates increased odds of becoming a problem gambler, and an odds ratio of less than 1 means lower odds than the reference category. 95% confidence intervals are shown; if the confidence interval spans 1, the difference in odds is not statistically significant.

(Table A4.1)

Age was a significant predictor of non-problem gamblers at baseline becoming problem gamblers at the follow-up. Compared with 18-24 year olds, older adults in three age groups had increased odds of becoming problem gamblers: those aged 25-34, 45-54 and 55-64. Note that the odds ratios for these groups are very high – between 25 and 35 times the odds of the reference group, aged 18-24 at baseline. This is because young adults were very unlikely to become problem gamblers.

Ethnicity was also a predictor of becoming a problem gambler at the follow-up. Compared with those of White/White British ethnicity, Those of Black/Black British ethnicity had 2.75 times the odds of becoming problem gamblers at the follow-up.

Finally, **income** at baseline was associated with becoming a problem gambler at follow-up. Compared with the lowest quartile (those with an income of up to £10,400 per year), those in the highest income quartile (earning £26,000 or more) had reduced odds of becoming problem gamblers; the highest income group had odds 0.28 times lower than the lowest income group.

Sex, educational attainment, employment status and area deprivation at the time of the baseline study were not significantly associated with whether participants became problem gamblers at the follow-up study.

4.3 Gambling activities associated with becoming a problem gambler

To explore whether particular activities were associated with the risk of subsequently becoming a problem gambler, gambling activities at baseline were included in further multivariate regression models. The baseline survey collected information on the frequency with which participants engaged in 17 individual gambling behaviours in the past four weeks.⁸

Separate models were constructed that included whether participants had engaged in each of these activities at least once a week in the past four weeks. The profiles of those who took part in each activity were not the same and the models included personal characteristics to account for this: sex, age, ethnicity and income. (Apart from sex, other characteristics that were not significant predictors of becoming a problem gambler were excluded in order to increase the efficiency of the models.)

Problem gamblers tend to take part in a range of gambling activities and involvement in a range of gambling activity more broadly can attenuate the association between

⁸ As shown in Table A2.1; playing poker in a pub has been excluded from this analysis as frequency information at baseline was not available.

specific gambling activities and problem gambling (LaPlante et al, 2009; LaPlante, Nelson & Gray, 2014). To control for this without including every activity in each model, a summary variable of the number of different activities engaged in at least once a week in the past four weeks was included in the models.⁹ The number of activities engaged in weekly was not itself a significant predictor of becoming a problem gambler, once sex, age, ethnicity and income had been controlled for.

For 16 of the 17 activities modelled in this way, there was no association between engaging at least once a week in that activity in the last four weeks in the baseline study and an increased likelihood of subsequently becoming a problem gambler.¹⁰ The exception was playing machines in a bookmaker; participants who did this at least weekly at baseline had increased odds of 2.29 times those who did not play bookmakers machines or did not play them that frequently in the last four weeks.

(Table A4.2)

It should be remembered that this is a sample of individuals already likely to be engaged with playing machines in bookmakers, as evidenced by their possession of one or more bookmakers loyalty cards. As Chapter 2 shows, 75% of the follow-up survey sample had played bookmakers machines in the last four weeks at baseline, and 65% had done so in the four weeks preceding the follow-up survey. In both surveys, machines were the most frequently mentioned gambling activity. The nature of the sample makes it impossible to tell whether a broader sample of individuals whose gambling activities did not include machine play, or for whom machine play was a relatively insignificant element in their overall play, would show similar results.¹¹

⁹ This broadly replicates the analytical procedure used by LaPlante et al 2009, though the models included in this chapter included controls for demographic profile as well as gambling involvement. The number of gambling activities undertaken weekly was chosen as the measure of gambling involvement as it represents the most regular levels of engagement among this sample of frequent gamblers. Analysis was also conducted using the number of gambling activities undertaken in the past four weeks as a control for gambling involvement which gave broadly similar results (results available from authors on request).

¹⁰ There was a significant association between playing the National Lottery at least once a week and subsequently becoming a problem gambler; weekly players had reduced odds of 0.48 of becoming a problem gambler compared with those who did not play the National Lottery at least once a week at baseline.

¹¹ Models for weekly participation in betting on non-sports events other than online and for football pools indicated risks that were just outwith the 95% confidence interval that is used in this research to indicate statistical significance.

5 Conclusions

To date, evidence about British gambling behaviour has tended to focus on cross-sectional studies, such as the British Gambling Prevalence Survey series, that describe behavior at a particular time. Change has been measured by comparing these discrete studies across time. Whilst these studies provide an overview of how gambling behaviour may vary for the whole population, they do not tell us how gambling changes for individuals.

This study has addressed this lack by following up individuals two years after they were originally interviewed to see how their gambling behaviour had changed. Comparing results from the baseline and follow-up studies highlights how trends in prevalence rates mask broader changes. Problem gambling rates were similar at baseline and follow-up, but there was a great deal of movement in problem gambling scores among individuals. 46% of participants did not have the same problem gambling status as previously, with 6% of participants becoming problem gamblers at follow up and 9% of participants moving from problem gambling to at risk or non-problem gambling status.

As well as identifying those who became problem gamblers, this study explores the characteristics of these people. Those with low incomes and from non-White ethnic backgrounds were more likely to become problem gamblers than other groups. These groups are typically viewed as being more vulnerable to gambling problems and this study provides further evidence that they should be considered risk groups. It also suggests that inequalities among these groups may be growing and that inequality in the experience of gambling problems is both relative and absolute. For example, those with the lowest levels of personal income had rates of increasing PGSI scores that were nearly three times higher than those with the highest levels of income. Of the various gambling activities undertaken at baseline, only playing machines in bookmakers on a weekly basis was significantly associated with becoming a problem gambler once overall gambling engagement was taken into account. This is broadly in line with previous analysis conducted by LaPlante et al (2009). However, some caution should be taken with this finding. In both the baseline and follow up surveys, machines were the most frequently mentioned gambling activity. It is not clear whether a broader sample of individuals for whom machine play was a relatively insignificant element in their overall play would show similar results.

There was also a great deal of change in gambling participation generally; indeed, change was the norm. Over the period between the two surveys, people were likely to change the range of activities they took part in and change the frequency with which they gambled. These changes were in both directions, with some people increasing their gambling engagement and others decreasing their involvement. As Reith and Dobbie noted, stasis was not the norm (2013).

That said, those who played machines in bookmakers previously tended to continue to gamble on these machines (76%). However, for some, their frequency of gambling on these machines varied, with over half of participants changing how often they gambled on these machines. Notably, those who were more likely to increase their engagement on machines in bookmakers were those generally considered vulnerable to gambling

problems, namely those who were unemployed, who lived in deprived areas and those from non-White ethnic backgrounds.

Looking at changing machine gambling in context, it is the case that those who started to gamble on machines in bookmakers also tended to increase their interest in other forms of gambling. Likewise, those who stopped gambling on machines tended to reduce the other forms of gambling they took part in. There was little evidence of people substituting machine gambling for other forms of engagement, though this was potentially the case for a minority of people. Of course, understanding how machine gambling fits within people's broader gambling repertoire and who engages in what, when and why needs more detailed investigation. We would recommend more detailed follow up with those who changed gambling behaviour to better understand this.

Appendix A. Tables

Table A1.1 Profile of loyalty card respondents

<i>Socio-economic/demographic characteristics</i>		
	Baseline	Follow-up
	%	%
Sex		
Men	88	88
Women	12	12
Age		
16-24	16	12
25-34	23	23
35-44	19	19
45-54	22	22
55-64	13	15
65-74	6	7
75+	1	2
Government Office Region		
North East	7	8
North West	11	11
Yorkshire and the Humber	8	9
East Midlands	6	5
West Midlands	7	7
East of England	7	7
London	19	18
South East	8	8
South West	6	6
Wales	4	4
Scotland	16	16
Index of multiple deprivation - England		
Less deprived	64	67
Most deprived (80 th centile or above)	36	33
Index of multiple deprivation - Wales		
Less deprived	62	64
Most deprived (80 th centile or above)	38	36
Index of multiple deprivation - Scotland		
Less deprived	66	62
Most deprived (80 th centile or above)	34	38
Ethnic Group		
White/White British	82	82
Asian/Asian British	6	6
Black/Black British	7	6
Other ethnic group	5	6

Table A1.1 Profile of loyalty card respondents (continued)

	Baseline	Follow-up
	%	%
Employment status		
Paid employment	66	66
Unemployed	11	9
Looking after family/home	4	3
Student	3	2
Retired	9	10
Long term sick/disabled/other	7	10
<i>Bases (unweighted)</i>	<i>4727</i>	<i>1552</i>
<i>Bases (weighted)</i>	<i>4726</i>	<i>1552</i>

Table A2.1 Past four weeks gambling prevalence, baseline and follow-up

Those who took part in both studies aged 18 and over

Gambling activities	Baseline	Follow-up
	%	%
Lotteries and related products		
National Lottery	54	56
Scratchcards	42	38
Other lotteries	29	21
Machines/Games		
Football pools	15	15
Bingo	8	11
Machines in bookmakers	75	65
Fruit machines	30	32
Table games in a casino	14	12
Poker in a pub	6	5
Gambled online on casino games/slots/bingo	22	27
Betting activities		
Bet online	31	38
Betting exchanges	7	7
Bet on horses (not online)	52	50
Bet on dogs (not online)	31	26
Bet on sports events (not online)	47	47
Bet on other events (not online)	13	13
Spread bet	5	4
Private bet	16	14
<i>Bases (unweighted)</i>	<i>1552</i>	<i>1552</i>
<i>Bases (weighted)</i>	<i>1552</i>	<i>1552</i>

Table A2.2 Change in number of activities undertaken in past four weeks, by age group

Base: All respondents

Change in number of gambling activities undertaken in past four weeks	Age group			All
	18-34	35-54	55 and over	
	%	%	%	%
3-17 activities fewer at follow-up	23	11	8	15
2 activities less at follow-up	10	12	11	11
1 less activity at follow-up	12	18	22	17
No change	14	22	23	19
1 activity more at follow-up	11	15	19	14
2 activities more at follow-up	11	12	8	11
3+ activities more at follow-up	19	11	10	14
<i>Bases (unweighted)</i>	312	707	527	1551
<i>Bases (weighted)</i>	608	633	306	1550

Table A2.3 Frequency of participating in most popular activity, baseline and follow-up

Base: All respondents

Frequency of participation at follow-up	Frequency of participation at baseline				
	Every day	4-5 days per week	2-3 days per week	About once a week	Less often than once a week
	%	%	%	%	%
Every day	56	24	15	5	12
4-5 days per week	15	23	14	10	3
2-3 days per week	19	38	51	31	38
About once a week	3	12	12	38	16
Less often than once a week	6	3	7	16	30
<i>Bases (unweighted)</i>	472	261	543	179	96
<i>Bases (weighted)</i>	397	233	537	216	166

Table A2.4 Change in gambling frequency on most popular activity, by age group

Base: All respondents

Change in number of gambling activities undertaken in past four weeks	Age group			All
	18-34	35-54	55 and over	
	%	%	%	%
No change	40	49	44	44
Increased frequency of gambling	29	27	29	28
Decreased frequency of gambling	31	25	28	28
<i>Bases (unweighted)</i>	312	707	527	1551
<i>Bases (weighted)</i>	608	633	306	1550

Table A2.5 Gambling on machines in bookmakers, baseline and follow-up

Base: All respondents

Follow-up	Baseline	
	Did not gamble on machines in bookmakers in past four weeks	Did gamble on machines in bookmakers in past four weeks
	%	%
Gambled on machines in bookmakers in past four weeks	32	76
Did not gamble on machines in bookmakers in past four weeks	68	24
<i>Bases (unweighted)</i>	1314	238
<i>Bases (weighted)</i>	1160	392

Table A2.6 Change in participation in gambling on machines in bookmakers, by age group

Base: All respondents

Change in participation	Age group			All
	18-34	35-54	55 and over	
	%	%	%	%
Stable: gambled on machines at baseline and follow-up	48	60	67	56
Stable: did not gamble on machines at baseline and follow-up	18	18	13	17
Starters: gambled on machines at follow-up but not baseline	10	8	4	8
Stoppers: gambled on machines at baseline but not follow-up	24	15	15	18
Bases (unweighted)	313	707	527	1552
Bases (weighted)	609	633	306	1552

Table A2.7 Change in participation in gambling on machines in bookmakers by socio-economic characteristics

Base: All respondents

Characteristics		Change in frequency of gambling on machines in bookmakers				Bases	
		Stable: both baseline and follow-up	Stable: neither baseline or follow-up	Starters	Stoppers	Un-weighted	Weighted
All	%	56	17	8	18	1552	1552
Economic activity							
Employed	%	55	18	8	19	947	1023
Retired	%	67	11	2	20	244	143
Long term sick	%	62	19	6	12	126	108
Unemployed	%	56	15	16	13	169	177
Other	%	51	21	10	18	62	99
Area deprivation							
Less deprived area	%	59	15	6	20	977	1004
Most deprived (80 th centile or above): England, Scotland and Wales	%	52	19	13	16	524	490

Table A2.8 Frequency of gambling on machines in bookmakers, baseline and follow-up

Base: All respondents

Frequency of participation at follow-up	Frequency of participation at baseline				
	Every day	4-5 days per week	2-3 days per week	About once a week	Less often than once a week
	%	%	%	%	%
Every day	29	18	8	3	3
4-5 days per week	16	21	11	3	2
2-3 days per week	20	31	38	17	7
About once a week	10	18	17	31	11
Less often than once a week	26	11	26	46	77
<i>Bases (unweighted)</i>	<i>218</i>	<i>158</i>	<i>454</i>	<i>281</i>	<i>437</i>
<i>Bases (weighted)</i>	<i>146</i>	<i>105</i>	<i>362</i>	<i>271</i>	<i>665</i>

Table A2.9 Change in frequency of gambling on machines in bookmakers by socio-economic characteristics

Base: All respondents

Characteristics		Change in frequency of gambling on machines in bookmakers			Bases	
		No change	Increased frequency	Reduced frequency	<i>Unweighted</i>	<i>Weighted</i>
All	%	52	19	29	1548	1549
Ethnicity						
White/White British	%	53	17	29	1320	1270
Non White British	%	44	29	27	226	279
Economic activity						
Employed	%	53	17	30	945	1021
Retired	%	47	19	34	243	143
Long term sick	%	45	31	23	125	108
Unemployed	%	46	28	25	169	177
Other	%	63	18	19	62	99
Area deprivation						
Most deprived (80 th centile or above): England, Scotland and Wales	%	53	25	22	523	490
Less deprived area	%	50	17	33	974	1002

Table A2.10 Change in number of other gambling activities undertaken in past four weeks, by change in machine participation

Change in number of other gambling activities undertaken in past four weeks	Change in past four week participation on machines in bookmakers			
	Stable: gambled on machines at baseline and follow-up	Stable: did not gamble on machines at baseline and follow-up	Starters: gambled on machines at follow-up but not baseline	Stoppers: gambled on machines at baseline but not follow-up
	%	%	%	%
3-17 activities fewer at follow-up	10	11	6	24
2 activities less at follow-up	11	9	3	14
1 less activity at follow-up	17	16	3	17
No change	20	29	27	21
1 activity more at follow-up	15	12	17	13
2 activities more at follow-up	12	15	12	9
3+ activities more at follow-up	15	9	32	2
<i>Bases (unweighted)</i>	1071	147	91	242
<i>Bases (weighted)</i>	876	267	125	282

Table A3.1 PGSI status at baseline by PGSI status at follow-up

Base: All respondents

PGSI status at follow-up	PGSI status at baseline			
	Non-problem gambler	Low risk gambler	Moderate risk gambler	Problem gambler
	%	%	%	%
Non-problem gambler	71	40	9	7
Low risk gambler	18	41	29	7
Moderate risk gambler	10	17	41	27
Problem gambler	1	2	21	59
<i>Bases (unweighted)</i>	452	343	421	335
<i>Bases (weighted)</i>	444	374	373	359

Table A3.2 Change in PGSI status

Base: All respondents

	%
Stable PGSI status	
Stable - non problem	20
Stable - low risk	10
Stable - moderate risk	10
Stable - problem gambling	14
Change among non-problem gamblers at baseline	
Change - non problem to low risk	5
Change - non problem to moderate risk	3
Change - non problem to problem	0.3
Change among low risk gamblers at baseline	
Change (reduction) - low risk to non problem	10
Change - low risk to moderate	4
Change - low risk to problem	0.4
Change among moderate risk gamblers at baseline	
Change (reduction) - moderate to non problem	2
Change (reduction) - moderate to low risk	7
Change - moderate to problem	5
Change among problem gamblers at baseline	
Change (reduction) - problem to non problem	2
Change (reduction) - problem to low risk	2
Change (reduction) - problem to moderate	6
<i>Bases (unweighted)</i>	<i>1551</i>
<i>Bases (weighted)</i>	<i>1550</i>

Table A3.3 Change in PGSI status, by demographic and socio-economic factors

Base: All respondents

		Change in PGSI status					Bases	
		Stable PGSI status	Non-problem/low risk: problems increased	Low risk/moderate risk: problems decreased	Became problem gambler	Stopped being problem gambler	Un-weighted	Weighted
All	%	54	12	19	6	9	1551	1550
Sex								
Men	%	53	12	19	5	10	1377	1364
Women	%	55	11	16	11	7	174	186
Age								
18-24	%	56	14	25	.5	5	108	260
25-34	%	51	10	21	7	12	204	348
35-44	%	58	14	14	3	11	245	300
45-54	%	54	11	17	8	10	462	333
55-64	%	51	11	19	11	9	325	208
65+	%	52	19	17	4	8	202	98
Ethnicity								
White/White British	%	52	13	21	5	8	1322	1271
Asian/Asian British	%	71	5	7	5	12	67	88
Black/Black British	%	58	9	7	13	14	83	96
Other	%	56	12	12	1	19	77	95
Educational attainment								
Degree or higher	%	49	15	18	7	11	192	269
Professional qualification, below degree level	%	46	15	22	5	13	236	253
A-levels or equivalent	%	58	9	24	6	3	201	207
GCSEs or equivalent	%	57	12	17	5	9	435	458
Other/None	%	56	11	18	5	11	484	360
Employment								
Paid employment/self employed	%	52	13	22	5	9	947	1023
Retired	%	43	16	20	8	13	244	143
Long-term sick	%	56	12	11	10	12	126	108
Unemployed	%	63	10	10	4	14	169	177
Other	%	66	7	15	8	3	61	97

Table A3.4 Change in PGSI status, by demographic and socio-economic factors

		Change in PGSI status					Bases	
		Stable PGSI status	Non-problem/low risk: problems increased	Low risk/moderate risk: problems decreased	Became problem gambler	Stopped being problem gambler	Un-weighted	Weighted
Personal income								
Lowest income quartile	%	58	11	12	9	11	347	345
2 nd	%	51	8	28	5	8	293	294
3 rd	%	54	12	18	7	10	343	340
Highest income quartile	%	53	15	20	4	8	438	451
Area deprivation								
Less deprived area	%	54	11	21	5	9	976	1003
Most deprived (80 th centile or above): England, Scotland and Wales	%	53	14	16	6	11	524	490

Table A3.5 Change in PGSI score, by demographic and socio-economic factors

Base: All respondents

Demographic/socio-economic factor		Change in PGSI status			Bases	
		No change in PGSI score	PGSI score reduced	PGSI score increased	Unweighted	Weighted
Sex						
Men	%	81	11	7	1377	1364
Women	%	83	7	11	174	186
All	%	82	11	8	1551	1550
Age						
18-24	%	88	6	6	108	260
25-34	%	78	15	7	204	348
35-44	%	83	10	7	245	300
45-54	%	77	12	11	462	333
55-64	%	83	10	7	325	208
65+	%	88	8	4	202	98
Ethnicity						
White/White British	%	84	10	6	1322	1271
Asian/Asian British	%	74	11	15	67	88
Black/Black British	%	69	12	18	83	96
Other	%	67	14	20	77	95
Educational attainment						
Degree or higher	%	84	9	7	192	269
Professional qualification, below degree level	%	82	13	5	236	253
A-levels or equivalent	%	87	8	5	201	207
GCSEs or equivalent	%	80	9	11	435	458
Other/None	%	78	15	7	484	360
Employment						
Paid employment/self employed	%	83	10	7	947	1023
Retired	%	82	11	8	244	143
Long-term sick	%	73	15	12	126	108
Unemployed	%	72	16	12	169	177
Other	%	92	4	4	61	97
Personal income						
Lowest income quartile	%	74	12	14	347	345
2 nd	%	81	9	10	293	294
3 rd	%	82	12	6	343	340
Highest income quartile	%	85	10	5	438	451

Table A3.6 Change in PGSI score, by demographic and socio-economic factors (continued)

Demographic/socio-economic factor		Change in PGSI status			Bases	
		No change in PGSI score	PGSI score reduced	PGSI score increased	Unweighted	Weighted
Area deprivation						
Less deprived area	%	84	10	6	976	1003
Most deprived (80 th centile or above): England, Scotland and Wales	%	77	14	10	524	490

Table A4.1 Odds of becoming a problem gambler, by demographic and socio-economic factors

Base: All non-problem gamblers at baseline

	PGSI status at baseline		
	Odds ratio	Confidence interval (lower)	Confidence interval (upper)
Age (p<0.001)			
18-24	1		
25-34	25.9	2.8	238.7
35-44	8.9	0.9	89.2
45-54	34.3	3.5	333.4
55-64	30.8	2.8	337.2
65 and over	8.0	0.5	119.8
Ethnicity (p<0.05)			
White/White British	1		
Asian/Asian British	1.63	0.39	6.81
Black/Black British	2.75	1.07	7.06
Other	0.20	0.04	1.10
Income (p<0.05)			
Lowest income quartile	1		
2 nd	0.55	0.21	1.42
3 rd	0.67	0.30	1.49
Highest income quartile	0.28	0.11	0.73
Income not known	0.13	0.03	0.53

Table A4.2 Odds of becoming a problem gambler, by whether gambled on machines in bookmakers once a week or more in the last four weeks

Base: All non-problem gamblers at baseline

	PGSI status at baseline		
	Odds ratio	Confidence interval (lower)	Confidence interval (upper)
Machines in bookmakers (p<0.05)*			
Did not do weekly at baseline	1		
Gambled weekly at baseline	2.29	1.02	5.15

- *model included number of activities undertaken weekly at baseline as a control for gambling involvement.

Appendix B. Technical appendix

This appendix provides further detail on the methodological approach and the main analysis techniques used.

Survey processes

Sample design

Sample data for the baseline study was originally obtained from Ladbrokes, William Hill and Paddy Power bookmakers. A listing of loyalty card numbers which had been used in machines between September and November 2013, and which had a mobile telephone number or email address available was retrieved. 4727 people took part in the baseline study and were asked for their consent to be contacted about participating in other studies. 3988 participants from the baseline study agreed to be re-contacted about future research and formed the sample for the follow-up study.

The sample was cleaned and cases without a forename, surname or address were excluded from the follow-up. Those participants that had completed the baseline survey online (517 participants) were excluded from the follow-up study sample as no mobile number was available for contact. 3457 cases were issued in the sample for the follow-up study. The sample was divided into four evenly sized batches for issue to the Telephone Unit. A further 281 cases were issued during fieldwork in order to improve response. This additional sample consisted of cases that were missing some contact details such as name and address but provided a mobile telephone number. In total 3738 cases were issued to telephone interviewers.

An advance letter was sent to participants and they were able to opt out by calling the Freephone number provided. Overall, four participants (<1%) opted out of the study.

Pilot

A small pilot study was conducted to test the running of the questionnaire program including question routing, wording and the length of the questionnaire. Participants were offered a £5 Post Office voucher in compensation for their time. In total 18 complete interviews were conducted.

The average length of the interview was longer than the typical twenty minutes stated to the participant. Whilst this did not affect response, the length of the interview needed to be reduced by removing three questions that were not imperative to the study. These were agreed with GambleAware (formerly the Responsible Gambling Trust) prior to mainstage fieldwork.

Fieldwork

Fieldwork was conducted between 3rd May 2016 and 8th August 2016. Fieldwork for the baseline study was also conducted between the months of May and August. All telephone interviewers attended a project-specific training session before working on the project, where all project protocols, including the importance of explaining and gaining consent for data linkage, were covered.

Response rates

Table B.1 shows the final response for the study. A total of 3738 cases were issued to telephone interviewers. Interviewers were unable to make contact with 2028 participants (54% of issued cases). The number of unusable numbers in the sample (e.g. those that were wrong numbers or permanently disconnected) was higher than predicted.

Almost 1% of participants were unable to take part in the interview due to language barriers or for physical or cognitive reasons. A further 3% refused to take part in the interview.

In total 1561 fully productive interviews were conducted. Nine partial interviews were also conducted. The final response rate for the study was 42%.

(Table B1)

Table B1 Final outcome for all selected sample			
	No. of participants	% of issued sample	% of eligible sample
Issued sample	3738	100	-
Ineligible	10	0.3	-
Eligible sample	3728	99.7	100
Response	1561	-	41.9
Ineligible			
Died	7	0.2	-
Other unknown ineligibility	3	0.1	-
Total ineligible	10	0.3	-
Not contacted			
Always fax/modem/data line	8	0.2	-
Always telecommunication barriers e.g. call blocking	18	0.5	-
Wrong number	123	3.3	-
Number permanently disconnected or unavailable	515	13.8	-
Other non-contact (no answer, answerphone, busy)	1364	36.6	-
Total not contacted	2028	54.4	-
Refusals			
Refusal to office	4	0.1	0.2
Refusal by participant	99	2.7	5.8
Refusal by proxy	11	0.3	0.6
Total refusals	114	3.1	6.7

Table B2 Final outcome for all selected sample (continued)			
	No. of participants	% of issued sample	% of eligible sample
Other unproductive			
Ill/away during survey period	6	0.2	0.4
Physically or mentally unable	7	0.2	0.4
Language barriers	12	0.3	0.7
Total other unproductives	25	0.7	1.5
Productive interviews			
Fully productive interview	1552	41.6	90.8
Partial productive interview	9	0.2	0.5
Total productive interviews	1561	41.9	91.3

Weighting

Two weights were computed to adjust the follow-up survey estimates in order to tackle non-response: one for all participants to the survey at follow-up and the other for those who agreed to link their responses to other records at follow-up. The weights were computed using information collected at baseline as well as population information included in the sample frame. Using this approach we ensure that the distribution of some key variables in the sample match the population figures or estimates from the baseline study. To compute these weights we followed a two-step approach: first we computed a sample weight to make the sample of those issued at follow-up representative of the population. We computed this sample weight because the cases excluded from the issue at follow-up were those who did not provide any contact details and these cases were likely to differ from the participants that completed the questionnaire. This weight was used as a starting point to calculate final weights calibrated to the population profile of the baseline study.

The population for this study is defined as all 181,581 loyalty cards which was our total sampling population. Only anonymized data for these 181,581 loyalty cards were available to NatCen and people who sign up to loyalty cards for operators agree to their using these data for a variety of purposes in the terms and conditions.

Sample weight

The sample weight adjusts for the differences between the cases issued at follow-up and all the participants at baseline. This interim weight was included as the cases not issued at follow-up were the ones who failed to complete the questionnaire and provide contact details. Another reason to compute the sample weight, instead of omitting this step, is that the information from baseline used at the follow-up weight was missing for most of the cases as they did not through the whole questionnaire (note that the sociodemographic information is asked at the end of the questionnaire).

To compute this weight we built a logistic regression model using the variables included in the baseline weighting. The dependent variable was whether the case was selected for issue at follow-up. The model was weighted by the baseline calibration weight. The sample weight is equal to the inverse of the probability of being issued.

Calibration weights

Calibration weighting was used to weight the participants at follow-up (and those who agreed to data linkage) back to the population of card holders using the variables included in the weighting at baseline plus some variables collected at baseline:

- operator or the bookmaker where the card was held;
- player loss which indicates the money won or lost between September and November;
- playing habits which is a combination of three variables: the longest session played (less than 30 minutes; 30 minutes or more); the maximum number of consecutive days they played (less than three days; three or more days); and the average of sessions per day (less than one; one or more). This variable has six categories to measure card holders' engagement, from low (1) to high engagement (6);
- whether the card holder ever staked £100 in a single bet;
- PGSI or level of risk of suffering gambling problems;
- and sociodemographic information such as age grouped, sex, ethnic minority, economic activity, equivalised income in quintiles, government office region and household type.

Appendix C. Regression to the mean

Regression to the mean (RTM) is an issue to be treated carefully with when it comes to repeated measures such as those used in this project. RTM is best understood as the consequence of random error in measurement. On first observation, if a measure has an extreme value in comparison to the true, underlying value, then on second observation it is much more likely to be closer to the true value than further away. This phenomenon has consequences for measuring individual as well as group change. Individuals at the extreme ends of the distribution at the first measure are more likely to have values closer to the centre of the distribution at second measure. The danger is misinterpreting this random error as true change.

While regression to the mean amongst some individuals in such a study is almost inevitable, the key question is to whether this random error is playing a role in the data as a whole, leading to overinterpretation of results.

Our approach to this issue took two main forms:

- Interrogating the data itself for evidence of regression to the mean; and
- Conducting the analysis in such a way as to avoid the potential pitfalls of RTM.

In common with Kruse et al (2016), a scatterplot was produced showing the level of change across the distribution of PGSI scores in the first wave. The classical manifestation of regression to the mean would indicate greater incidence of reduction at the top end of the distribution, and increase at the bottom end of the distribution. This pattern does not appear to hold in our data, particularly among low PGSI scores, which show less change than the middle of the distribution. It is not clear that there is any more change at the fringes of the distribution than there is at the centre.

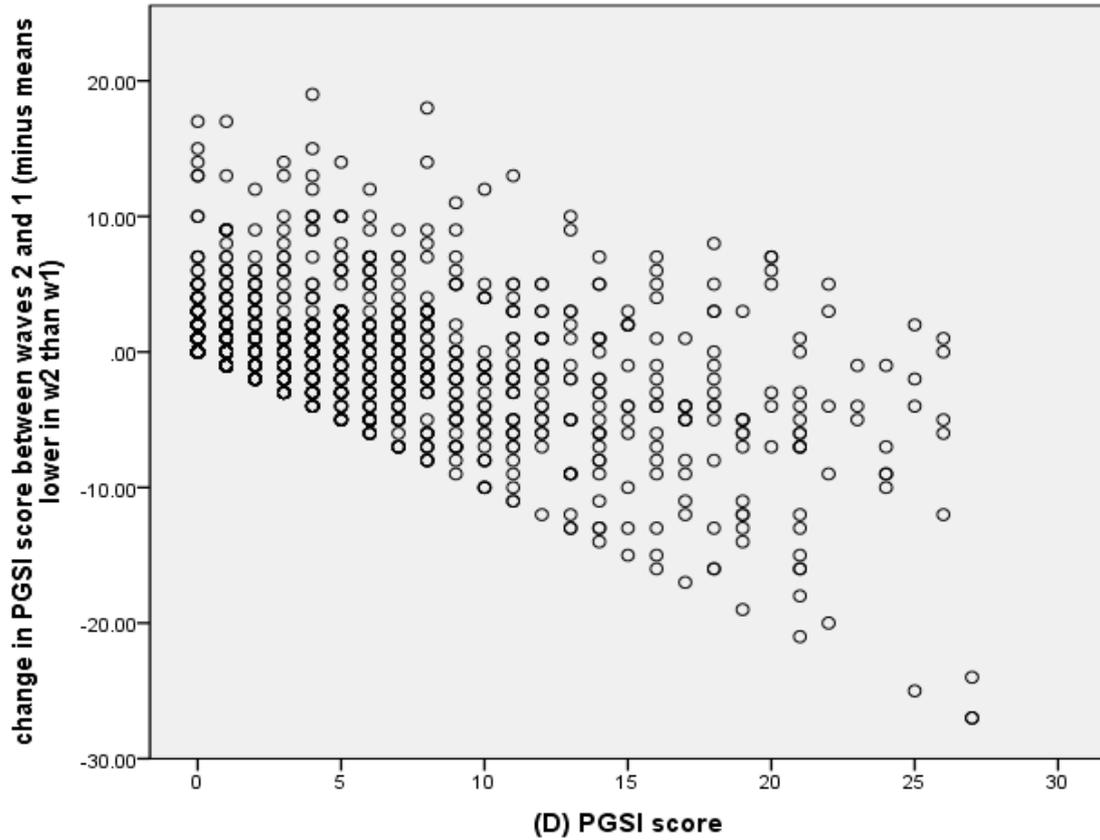
(Figure C1)

This is reinforced by Table A3.1, which breaks down the PGSI scores into four categories of analysis. What this shows is that there is in fact more stability between baseline and follow-up at the top and bottom of the distribution than there is in the middle. 71% of those with no problem at baseline remained in the non-problem category, along with 59% of problem gamblers remained problem gamblers. This is compared with 41% of the low and moderate risk categories who stayed the same. This is counter to what one would expect if regression to the mean was significantly confounding results.

Nonetheless, as stated above, some mean regression among individuals remains likely. In order to avoid overinterpretation of random fluctuations in PGSI score, when analysing changes in scores in Chapter 3, we have defined change as someone whose score has changed by more than +/- one standard deviation. This is a relatively strict definition that counteracts the potential for mischaracterising measurement variation as real change. Regression to the mean causes the greatest problems in a trial scenario where a treatment has been offered and one wishes to compare follow-up outcomes between those with extreme scores at baseline compared to others. This type of analysis has been avoided.

Two similar studies to this one (Wiebe et al, 2003 and Kruse et al, 2016), both checked for evidence of regression to the mean in their data, and, in common with this study, found no obvious confounding issues.

Figure C1 Change in PGSI score between baseline and follow-up, by baseline PGSI score



Appendix D. References

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Appendix E. Questionnaire

NOTE: All questions are single code unless otherwise specified

Introduction and eligibility

Good morning / afternoon / evening, my name is [NAME] and I am calling from NatCen Social Research, the UK's leading social research institute.

Last year you took part in a survey of bookmaker loyalty card customers. We are following up on the letter we sent to you to ask for your help with a new study.

The interview varies in length depending on your answers to certain questions. For most people it will take around 25 minutes. You can skip any question you prefer not to answer. You will receive a £5 post office voucher as a 'thank you' for taking part in the survey.

Would you like to take part in the interview now?

INTERVIEWER: PLEASE CODE WHETHER TO PROCEED

- 1 Yes, will take part now
- 2 Yes, will take part but not available now – make APPOINTMENT
- 3 No, definitely does not want to take part

{Ask all}

Intro

Thank you for agreeing to take part in this survey. We want to speak to people who previously took part in a survey about gaming and betting and that have loyalty cards for a bookmaker so, for example, the Ladbrokes 'The Grid' card or the Paddy Power 'VIP' card.

{Ask all}

{CODE ALL THAT APPLY}

Activity

I'm going to read out a list of activities. Please tell me whether you have spent any money on any of the following activities in the last 4 weeks that is since {TEXT FILL OF DATE FOUR WEEK PRIOR TO INTERVIEW},

CODE ALL THAT APPLY

1. Tickets for the National Lottery Draw (including Thunderball and Euromillions and tickets bought online)
2. Scratchcards (not online, newspaper or magazine scratchcards)
3. Tickets for any other lottery, including charity lotteries
4. The football pools
5. Bingo cards or tickets, including playing at a bingo hall (not online)

6. Gaming machines in a bookmaker's to bet on roulette, poker, blackjack or other games
7. Fruit or slot machines somewhere else
8. Table games (roulette, cards or dice) in a casino
9. Playing poker in a pub tournament/ league or at a club
10. Online gambling like playing poker, bingo, instant win/scratchcard games, slot machine style games or casino games for money
11. Online betting with a bookmaker on any event or sport
12. Online betting exchange (This is where you lay or back bets against other people using a betting exchange. There is no bookmaker to determine the odds. This is sometimes called 'peer to peer' betting)
13. Betting on horse races in a bookmaker, by phone or at the track
14. Betting on dog races in a bookmaker, by phone or at the track
15. Betting on sports events in a bookmaker, by phone or at the venue
16. Betting on other events in a bookmaker, by phone or at the venue
17. Spread-betting (In spread-betting you bet that the outcome of an event will be higher or lower than the bookmaker's prediction. The amount you win or lose depends on how right or wrong you are)
18. Private betting or gambling for money with friends, family or colleagues
19. Another form of gambling in the last 4 weeks
20. None of these

{Ask if ACTIVITY does not include BOOKMACHINES}

Machines12

Have you spent money on machines in a bookmakers in the past 12 months?

1. Yes
2. No

{Ask if have not played any gambling activities in the past 4 weeks (activity) and machine12 = No or DK or RF}

Gam12

Have you spent money on any gambling activity in the past 12 months?

1. Yes
2. No

Frequency of participation – for all activities undertaken in the last 4 weeks

{Ask if activity = NL}

NLFREQ

In the past 4 weeks, how often have you bought tickets for the National Lottery Draw (including Thunderball, Euromillions)? This can be from a shop or online. READ OUT

1. Every day/almost every day
2. 4-5 days per week
3. 2-3 days per week
4. About once a week
5. Less than once a week

{Ask if activity = sc}

scFREQ

In the past 4 weeks, how often have you bought scratchcards? Please do not include anything bought online or from a newspaper or magazine. READ OUT

1. Every day/almost every day
2. 4-5 days per week
3. 2-3 days per week
4. About once a week
5. Less than once a week

{Ask if activity = olot}

olotFREQ

In the past 4 weeks, how often have you bought tickets for any other lottery, including charity lotteries? READ OUT

1. Every day/almost every day
2. 4-5 days per week
3. 2-3 days per week
4. About once a week
5. Less than once a week

{Ask if activity = pools}

poolsFREQ

In the past 4 weeks, how often have you spent money on the football pools? READ OUT

1. Every day/almost every day
2. 4-5 days per week
3. 2-3 days per week
4. About once a week
5. Less than once a week

{Ask if activity = bingo}

bingoFREQ

In the past 4 weeks, how often have you spent money on bingo cards or tickets (please do not include online bingo)? READ OUT

1. Every day/almost every day
2. 4-5 days per week
3. 2-3 days per week
4. About once a week
5. Less than once a week

{Ask if activity = bookmachines}

bkmachineFREQ

In the past 4 weeks, how often have you spent money on gaming machines in a bookmakers? READ OUT

1. Every day/almost every day
2. 4-5 days per week
3. 2-3 days per week
4. About once a week
5. Less than once a week

{Ask if activity = fruit}

fruitFREQ

In the past 4 weeks, how often have you spent money on fruit or slot machines? READ OUT

1. Every day/almost every day
2. 4-5 days per week
3. 2-3 days per week
4. About once a week
5. Less than once a week

{Ask if activity = casino}

casinoFREQ

In the past 4 weeks, how often have you spent money on table games (roulette, cards or dice) in a casino? Please do not include online casinos. READ OUT

1. Every day/almost every day
2. 4-5 days per week
3. 2-3 days per week
4. About once a week
5. Less than once a week

{Ask if activity = poker}

PokerFREQ

In the past 4 weeks, how often have you spent money playing poker in a pub tournament/ league or at a club? READ OUT

1. Every day/almost every day
2. 4-5 days per week
3. 2-3 days per week
4. About once a week
5. Less than once a week

{Ask if activity = online}

onlineFREQ

In the past 4 weeks, how often have you spent money gambling online on poker, bingo, instant win/scratchcard games, slot machine style games or casino games? READ OUT

1. Every day/almost every day
2. 4-5 days per week

3. 2-3 days per week
4. About once a week
5. Less than once a week

{Ask if activity = onbet}

onbetFREQ

In the past 4 weeks, how often have you spent money betting online with a bookmaker on any event or sport? READ OUT

1. Every day/almost every day
2. 4-5 days per week
3. 2-3 days per week
4. About once a week
5. Less than once a week

{Ask if activity = betex}

betexFREQ

In the past 4 weeks, how often have you spent money betting online on betting exchanges? READ OUT

1. Every day/almost every day
2. 4-5 days per week
3. 2-3 days per week
4. About once a week
5. Less than once a week

{Ask if activity = horse}

horseFREQ

In the past 4 weeks, how often have you spent money betting on horse races in a bookmakers, by phone or at the track? Please do not include bets made online. READ OUT

1. Every day/almost everyday
2. 4-5 days per week
3. 2-3 days per week
4. About once a week
5. Less than once a week

{Ask if activity = dog}

dogFREQ

In the past 4 weeks, how often have you spent money betting on dog races in a bookmakers, by phone or at the track? Please do not include bets made online. READ OUT

1. Every day/almost everyday
2. 4-5 days per week
3. 2-3 days per week
4. About once a week
5. Less than once a week



{Ask if activity = sports}

sportsFREQ

In the past 4 weeks, how often have you spent money betting on sports events in a bookmakers, by phone or at the track? Please do not include bets made online. READ OUT

1. Every day/almost every day
2. 4-5 days per week
3. 2-3 days per week
4. About once a week
5. Less than once a week

{Ask if activity = othbet}

othbetFREQ

In the past 4 weeks, how often have you spent money betting on other events in a bookmakers, by phone or at the track? Please do not include bets made online. READ OUT

1. Every day/almost every day
2. 4-5 days per week
3. 2-3 days per week
4. About once a week
5. Less than once a week

{Ask if activity = spread}

spreadFREQ

In the past 4 weeks, how often have you spent money spread-betting? READ OUT

1. Every day/almost every day
2. 4-5 days per week
3. 2-3 days per week
4. About once a week
5. Less than once a week

{Ask if activity = private}

privFREQ

In the past 4 weeks, how often have you bet or gambled privately for money with friends, family or colleagues? READ OUT

1. Every day/almost every day
2. 4-5 days per week
3. 2-3 days per week
4. About once a week
5. Less than once a week

{Ask if activity = other}

othFREQ

In the past 4 weeks, how often have you spent money on other forms of gambling? READ OUT

1. Every day/almost every day
2. 4-5 days per week
3. 2-3 days per week
4. About once a week
5. Less than once a week

{Ask All}

Loyalty

Do you currently have a loyalty card or machine card for any bookmaker's?

1. Yes
2. No

{If Loyalty =Yes}

Loynum

How many loyalty or machine cards for different bookmaker's do you have?

Range 1..20

{If Loyalty=Yes}

Loytype

Which loyalty and machine cards do you have? READ OUT

CODE ALL THAT APPLY

1. Ladbrokes 'The Grid' card
2. William Hill 'Linked' card
3. Paddy Power 'VIP' card
4. Coral 'Connect' card
5. Betfred 'VIP' card
6. Other loyalty or machine card (please specify)

{If Loytype=other}

LoyOth

Please specify the other type of loyalty or machine card that you have

{Ask if Activity *includes* Gambling machines in bookmakers (code 6) OR Machines12 = Yes AND Loyalty=Yes}

Loyfreq

When playing machines at a bookmaker's, how often do you use your loyalty or machine card? READ OUT

1. Always
2. Most of the time
3. Some of the time
4. Rarely
5. Never

Gambling behaviours

{Ask if Activity includes any valid response OR Machines12 = Yes OR Gambling12 = Yes}

IntroPGSI

I am now going to ask you a set of questions about gambling, please indicate the extent to which each one has applied to you in the past 12 months

{Ask if Activity includes any valid response OR Machines12 = Yes OR Gambling12 = Yes}

pgsi1

In the past 12 months, how often have you bet more than you could afford to lose?

READ OUT

1. Almost always
2. Most of the time
3. Sometimes
4. Never

{Ask if Activity includes any valid response OR Machines12 = Yes OR Gambling12 = Yes}

pgsi2

In the past 12 months, how often have you needed to gamble with larger amounts of money to get the same excitement? READ OUT

1. Almost always
2. Most of the time
3. Sometimes
4. Never

{Ask if Activity includes any valid response OR Machines12 = Yes OR Gambling12 = Yes}

pgsi3

In the past 12 months, how often have you gone back to try to win back the money you'd lost READ OUT

1. Almost always
2. Most of the time
3. Sometimes
4. Never

{Ask if Activity includes any valid response OR Machines12 = Yes OR Gambling12 = Yes}

pgsi4

In the past 12 months, how often have you borrowed money or sold anything to get money to gamble? READ OUT

1. Almost always
2. Most of the time

-
3. Sometimes
 4. Never

{As if Activity includes any valid response OR Machines12 = Yes OR Gambling12 = Yes}

pgsi5

In the past 12 months, how often have you felt that you might have a problem with gambling? READ OUT

1. Almost always
2. Most of the time
3. Sometimes
4. Never

{Ask if Activity includes any valid response OR Machines12 = Yes OR Gambling12 = Yes}

pgsi6

In the past 12 months, how often have you felt that gambling has caused you any health problems, including stress or anxiety? READ OUT

1. Almost always
2. Most of the time
3. Sometimes
4. Never

{Ask if Activity includes any valid response OR Machines12 = Yes OR Gambling12 = Yes}

pgsi7

In the past 12 months, how often have people criticised your betting, or told you that you have a gambling problem, whether or not you thought it is true? READ OUT

1. Almost always
2. Most of the time
3. Sometimes
4. Never

{Ask if Activity includes any valid response OR Machines12 = Yes OR Gambling12 = Yes}

pgsi8

In the past 12 months, how often have you felt your gambling has caused financial problems for you or your household? READ OUT

1. Almost always
2. Most of the time
3. Sometimes
4. Never

{Ask if Activity includes any valid response OR Machines12 = Yes OR Gambling12 = Yes}

pgsi9

In the past 12 months, how often have you felt guilty about the way you gamble or what happens when you gamble? READ OUT

1. Almost always
2. Most of the time
3. Sometimes
4. Never

{Ask if activity includes bookmachine OR machine12 = yes}

machprob

In the past 12 months, how often have you felt that you might have a problem with your gaming machine play? READ OUT

1. Almost always
2. Most of the time
3. Sometimes
4. Never

{Ask if Activity includes any valid response OR Machines12 = Yes OR Gambling12 = Yes}

Arguments

How often in the past 12 months have you had arguments with your family about your gambling? READ OUT

1. Never
2. Less than monthly,
3. Monthly,
4. Weekly
5. Daily or almost daily

{Ask if Activity includes any valid response OR Machines12 = Yes OR Gambling12 = Yes}

Expect

How often in the past 12 months have you failed to do what was normally expected from you because of your gambling? READ OUT

1. Never
2. Less than monthly,
3. Monthly,
4. Weekly
5. Daily or almost daily

{Ask if Activity includes any valid response OR Machines12 = Yes OR Gambling12 = Yes}

Without

How often in the past 12 months have you or someone in your household, had to go without something you needed, because you spent too much money on gambling?

READ OUT

1. Never
2. Less than monthly,
3. Monthly,
4. Weekly
5. Daily or almost daily

{Ask if Activity includes any valid response OR Machines12 = Yes OR Gambling12 = Yes}

Change

Thinking about all different types of gambling we've just asked you about, in the past 12 months would you say that your overall gambling involvement has increased, decreased or stayed the same? READ OUT

1. Increased
2. Decreased
3. Stayed the same

{If Change = increased}

ChangeI

Did it increase a little or a lot?

1. A little
2. A lot

{If Change = decreased}

ChangeD

Did it decrease a little or a lot?

1. A little
2. A lot

{If Change = increased}

Whyincrease

Which of the following were the main reasons for your increased gambling involvement?

READ OUT AND CODE ALL THAT APPLY

1. I've more money to spend now
2. I've more time now
3. I've more opportunities to gamble
4. Because of family and friends
5. Because I wanted to

6. There was a change in my health
7. To support charity
8. I increased gambling following a win
9. I wanted to make money
10. Other

{If Whyincrease=other}

WhyincO

Please specify other reason for increase in gambling

{If Change=decreased}

Whydecrease

Which of the following were the main reasons for your decreased involvement?

READ OUT AND CODE ALL THAT APPLY

1. I have less money to spend now
2. I wanted to save money/spend money on other things
3. I have less time now
4. I have fewer opportunities to gamble
5. I've lost interest in gambling
6. My priorities have changed
7. There was a change in my health
8. Other

{If Whydecrease=other}

WhydecO

Please specify other reason for decrease in gambling

{If whyincrease or whydecrease = change in health}

Health

Did your health get better or worse?

- 1 Got better
- 2 Got worse.

{Ask all machine players (if activity = 6 or machines12= yes)}

Limits

The next few questions are about your play on machines in bookmakers

In the past 12 months have you set any limits on the amount of money or time you spend on machines in bookmakers?

1. Yes
2. No

{If Limits = Yes}

Limittype

Did you set a limit on the amount of money you spent on machines, the amount of time you spent or both?

- 1 Money limits only
- 2 Time limits only
- 3 Both

{If Limits = Yes}

Limitfreq

When you played machines in bookmakers, how often did you set money or time limits on machines? READ OUT

- 1 Almost always
- 2 Most of the time
- 3 Sometimes
- 4 Rarely/never

{If Limits = Yes}

Limitation

And when you reached the money and/or time limit that you'd set did you tend to stop playing the machines or to carry on?

- 1 Stopped playing
- 2 Carried on
- 3 Spontaneous only: it varied

{Ask all machine players (if activity = 6 or machines12= yes)}

Otherlimits

In the past 12 months, has a message appeared on the machine telling you that you've played machines for more than 30 minutes or spent more than £250?

- 1 Yes
- 2 No

{If Otherlimits = Yes}

Limitation2

And when you saw this message did you tend to stop playing the machines or to carry on?

- 1 Stopped playing
- 2 Carried on
- 3 Spontaneous only: it varied

{Ask all machine players (if activity = 6 or machines12= yes)}

Staff

In the past 4 weeks when playing on machines in bookmakers, has a member of staff spoken to you about your machine play?

- 1 Yes
- 2 No

{Ask All}

Intro

The next few questions are about you generally and how you think and feel.

{Ask All}

Intro2

I am going to read out a number of statements that may apply to you. Answer the following statements as honestly as possible. Please tell us how much you agree or disagree with the following statements. Please tell me if you strongly agree, agree, neither agree nor disagree, disagree or strongly disagree.

{Ask All}

REI1

I don't like to have to do a lot of thinking. READ OUT

1. Strongly agree
2. Agree
3. Neither agree nor disagree
4. Disagree
5. Strongly disagree

{Ask All}

REI2

I try to avoid situations that require thinking in depth about something. READ OUT (IF NECESSARY)

1. Strongly agree
2. Agree
3. Neither agree nor disagree
4. Disagree
5. Strongly disagree

{Ask All}

REI3

I prefer to do something that challenges my thinking abilities rather than something that requires little thought. READ OUT (IF NECESSARY)

1. Strongly agree
2. Agree
3. Neither agree nor disagree
4. Disagree
5. Strongly disagree

{Ask All}

REI4

I prefer complex to simple problems. READ OUT (IF NECESSARY)

1. Strongly agree
2. Agree

-
3. Neither agree nor disagree
 4. Disagree
 5. Strongly disagree

{Ask All}

REI5

Thinking hard and for a long time about something gives me little satisfaction READ OUT (IF NECESSARY)

6. Strongly agree
7. Agree
8. Neither agree nor disagree
9. Disagree
10. Strongly disagree

{Ask All}

REI6

I trust my initial feelings about people READ OUT (IF NECESSARY)

1. Strongly agree
2. Agree
3. Neither agree nor disagree
4. Disagree
5. Strongly disagree

{Ask All}

REI7

I believe in trusting my hunches. READ OUT (IF NECESSARY)

1. Strongly agree
2. Agree
3. Neither agree nor disagree
4. Disagree
5. Strongly disagree

{Ask All}

REI8

My initial impressions of people are almost always right. READ OUT (IF NECESSARY)

1. Strongly agree
2. Agree
3. Neither agree nor disagree
4. Disagree
5. Strongly disagree

{Ask All}

REI9

When it comes to trusting people, I can usually rely on my "gut feelings." READ OUT (IF NECESSARY)

1. Strongly agree
2. Agree
3. Neither agree nor disagree
4. Disagree
5. Strongly disagree

{Ask All}

REI10

I can usually feel when a person is right or wrong even if I can't explain how I know READ OUT (IF NECESSARY)

1. Strongly agree
2. Agree
3. Neither agree nor disagree
4. Disagree
5. Strongly disagree

{Ask All}

IntroBis

For the next set of questions I'm going to ask how often the statement applies to you. Please tell me whether your answer is rarely or never, occasionally, often or almost always or always.

{Ask All}

bis1

I don't "pay attention." READ OUT

1. Rarely or never
2. Occasionally
3. Often
4. Almost always or always

{Ask All}

Bis2

I say things without thinking. READ OUT (IF NECESSARY)

1. Rarely or never
2. Occasionally
3. Often
4. Almost always or always

{Ask All}

Bis3

I act "on impulse." READ OUT (IF NECESSARY)

1. Rarely or never
2. Occasionally
3. Often
4. Almost always or always

{Ask All}

Bis4

I act on the spur of the moment. READ OUT (IF NECESSARY)

1. Rarely or never
2. Occasionally
3. Often
4. Almost always or always

{Ask All}

Bis5

I save regularly. READ OUT (IF NECESSARY)

1. Rarely or never
2. Occasionally
3. Often
4. Almost always or always

{Ask All}

Bis6

I plan for job security. READ OUT (IF NECESSARY)

1. Rarely or never
2. Occasionally
3. Often
4. Almost always or always

{Ask All}

Bis7

I am future oriented. READ OUT (IF NECESSARY)

1. Rarely or never
2. Occasionally
3. Often
4. Almost always or always

{Ask All}

IntroCRT

I am going to read out a number of brief puzzles involving numbers. Please give the numerical answer that you think is the correct solution. You do not need a pen and paper. Please give me the answer you have worked out in your head. You will have one minute to answer each question. I will let you know when the time is up.

INTERVIEWER INSTRUCTION: You may repeat each question up to 3 times. The participant will have one minute to answer each question. The countdown timer will indicate when one minute has passed.

{Ask All}

CRT1

A bat and a ball cost £1.10 in total. The bat costs £1.00 more than the ball. How much does the ball cost?

INTERVIEWER INSTRUCTION: Please record answer in pounds and pence e.g. if participant answers 20 pence then record as 0.20 using a decimal point. If participant is unable to answer question please record as don't know.

0..100.

{Ask All}

CRT2

If it takes 5 machines 5 minutes to make 5 widgets, how many minutes would it take 100 machines to make 100 widgets?

INTERVIEWER INSTRUCTION: If participant is unable to answer question please record as don't know.

0..1000

{Ask All}

CRT3

In a lake, there is a patch of lily pads. Every day, the patch doubles in size. If it takes 48 days for the patch to cover the entire lake, how many days would it take for the patch to cover half of the lake?

INTERVIEWER INSTRUCTION: If participant is unable to answer question please record as don't know.

0..100

Demographics

{Ask All}

Demintro

I am now going to ask you a few questions about yourself

{Ask All}

Introwell

I would like to ask you four questions about your feelings on aspects of your life. There are no right or wrong answers. For each of these questions I'd like you to give an answer on a scale of nought to 10, where nought is 'not at all' and 10 is 'completely'.

{Ask All}

Satis

Overall, how satisfied are you with your life nowadays? Interviewer instruction: where nought is 'not at all satisfied' and 10 is 'completely satisfied'

: 0...10

{Ask All}

Worth

Overall, to what extent do you feel that the things you do in your life are worthwhile?

: 0...10

{Ask All}

Happy

Overall, how happy did you feel yesterday?

:0...10

{Ask All}

Anxious

On a scale where nought is 'not at all anxious' and 10 is 'completely anxious', overall, how anxious did you feel yesterday?

: 0...10

{Ask All}

Lifevents

I'm going to read out a list of events, please can you tell me which, if any, you have experienced in the past 12 months?

1. Got married
2. Got divorced or separated from a long term partner
3. Had children/new family additions
4. Children left home
5. Experienced the death of someone close to you
6. Retired
7. Lost your job/was made redundant
8. Started work/employment
9. Started full time education
10. Experienced trouble at work with colleagues/boss
11. Experienced legal difficulties
12. Major changes to your financial situation
13. Experienced major illness or injury
14. Took on mortgage or large loan
15. Moved house
16. Moved city or town
17. None of these

{If lifevents = major changes to my financial situation}

Finance

Did your financial situation get better or become worse?

1. Got better
2. Got worse

{Ask All}

Genhealth

How is your health in general, would you say it is...

1. Very good
2. Good
3. Fair
4. Bad
5. Very bad?

{Ask All}

Age

What is your age?

RANGE: 18...100

{Ask All}

Sex

Are you male or female?

1. Male
2. Female

{Ask All}

Marstat

Are you...READ OUT...

1. Single, that is never married
2. Married and living with husband/wife
3. A civil partner in a legally recognised civil partnership and living with your partner
4. Married and separated from [wife] / [husband]
5. Divorced
6. Widowed
7. SPONTATEOUS ONLY – civil partner – separated
8. SPONTANTEOUS ONLY – civil partner – partnership legally dissolved
9. SPONTANTEOUS ONLY – civil partner – widowed.

{Ask All}

Econact

In the last 7 days were you mainly: READ OUT

1. Working as an employee (or temporarily away)

2. On a government sponsored training scheme
3. Self-employed or freelance
4. Doing other paid work
5. Retired
6. A student
7. Looking after the home or family
8. Long-term sick or disabled
9. None of these

{Ask All}

Topqual

Can you tell me the highest educational qualification you have obtained? Is it.. READ OUT...

1. Degree or higher
2. Professional qualification below degree level
3. A-levels or equivalent
4. GCSE/O-levels or equivalent
5. Other
6. None

{Ask All}

WIntro

I am now going to ask you some questions about your income.

{Ask All}

WIncBW

Thinking of your own personal income from all sources, before any deductions for income tax, National Insurance, and so on, is it £26,000 per year or more?

1. Yes
2. No

{Ask if WIncBW=Yes}

WIncUp

And is it £40,000 per year or more?

1. Yes
2. No

{Ask if WIncUp=Yes}

WincUp1

And is it...

1. Between £40,000 and £46,799
2. Between £46,800 and £51,999
3. £52,000 or more

{Ask if WIncUp=No}

WIncUp2

And is it...

1. Between £26,000 and £31,199
2. Between £31,200 and £36,399
3. Between £36,400 and £39,999

{Ask if WIncBW=No}

WIncDw

Is it less than £10,400 per year?

1. Yes
2. No

{Ask if WIncDw=Yes}

WIncDw1

And is it...

1. Up to £2,599
2. Between £2,600 and £5,199
3. Between £5,200 and £10,399

{Ask if WIncDw=No}

WIncDw2

And is it...

1. Between £10,400 and £15,599
2. Between £15,600 and £20,799
3. Between £20,800 and £25,999

{Ask All}

hhold

Do you live with other people?

1. Yes
2. No

{Ask if hhold = yes}

{CODE ALL THAT APPLY}

Hhold2

Who else do you live with?

1. Spouse or partner
2. Your own children under the age of 16
3. Your own children over the age of 16
4. Other children under the age of 16
5. Other adult family members
6. Other adults - non family members

{Ask if who = childu16}

howmanyC16

How many of your own children under the age of 16 do you live with?

RANGE: 1...15

{Ask if who = childO16}

howmanyO16

How many of your own children over the age of 16 do you live with?

RANGE: 1...15

{Ask if who = childOth}

howmanyOC

How many other children do you live with?

RANGE: 1...15

{Ask if who = Other adult family members}

howmanyOa

How many other adult family members do you live with?

RANGE: 1...15

{Ask if who = Other adults – non family members}

howmanyOn

How many other adults do you live with?

RANGE: 1...15

Data linking and final questions

{Ask All}

Link

Thanks for all the information you've given us so far.

{If Loyalty=Yes}

You mentioned that you sometimes use a loyalty card for a bookmakers.

In order to make your survey responses even more useful, we'd like to link your survey answers to information from the bookmaker's loyalty card records. This is so that we can see how play varies for different types of people.

We will only use this for research purposes; your personal details will be kept completely confidential. All information will be treated in line with the Data Protection Act

Are you happy for us to link your survey answers with loyalty card records?

IF NECESSARY: What data do we mean?

The information we are talking about is information recorded by the machine about the amount staked, the length of time spent playing, games played, amount won etc.

Each machine records all of this data for each transaction - this is completely anonymous

IF NECESSARY: Why are we doing this?

The machine gives us more accurate information than asking people can. For example if we asked you how much time you spent playing gaming machines in the past 6 months, it is likely that you will not accurately remember, whereas the machine records the exact amount of time.

IF NECESSARY: What will we do with the data once we've linked it?

We will use the data to look at your survey answers about your machine play and other types of gambling activity etc, and compare this with the machine data on your length of play, type of games played, amount spent etc. This will give us an accurate overall picture of machine play for one person - we will then do the same with lots of other people to build up an overall picture of different types of machine play.

1. Yes
2. No

{If Link=Yes}

To link your data to your loyalty card records I need to collect some details about you.

LinkDOB

What is your date of birth? Please can you give me the day, month and full year.

{If Link=Yes}

Linkname

What is your first name?

String[50]

{If Link=Yes}

Linksurname

What is your surname?

String[50]

{If Link=Yes}

LinkPCCode

What is your postcode?

String[50]

{if provided name and postcode at Link}

Address2

We would like to send you a £5 post office voucher as a thank you for taking part in the survey. To do this, I need your name and address details. I've got your name recorded as Linkname Linksurname and your postcode recorded as LinkPCode

{if Link=No}

Address2

We would like to send you a £5 post office voucher as a thank you for taking part in the survey. To do this, I need your full address

{Ask All}

Forename2

Please enter your first name

String[50]

{Ask All}

Surname2

Please enter your surname

String[50]

{Ask All}

Address1a

First line of address

String[100]

{Ask All}

Address2a

Second line of address

String [100]

{Ask All}

Address3a

Town or city

String[100]

{Ask All}

Postcode2

Postcode

String[100]

{Ask All}

IF any (Address1-Postcode) is empty, DK, RF THEN

AddCheck

Without your full address details, we won't be able to send your £5 thank you voucher to you. Please press PREVIOUS to enter your details.

{Ask All}

Home

Is this your home address?

1. Yes
2. No

{Ask All}

Recontact

If at some future date we wanted to talk to you further, may we contact you to see if you are willing to help us again?

1. Yes
2. No

{Ask All}

END

That's the end of the questionnaire, thank you for your time.