

British Survey of Children, the National Lottery and Gambling 2008-09

Report of a quantitative survey

July 2009

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Summary

Summary

Introduction

The 2008-09 British Survey of Children¹ and Gambling was carried out by Ipsos MORI's Social Research Institute and the Centre for the Study of Gambling at the University of Salford on behalf of the National Lottery Commission. The research consisted of a quantitative survey of nearly 9,000 children aged between 12² and 15 in England and Wales³. Children filled out self-completion questionnaires which captured information about their experiences of, and attitudes towards, gambling on a range of games. Questionnaires were administered via schools; overall a school-level response rate of 22% was achieved.

This research study uses the same methodology, and covers similar topics, as surveys conducted in 1997, 1999, 2000, and 2005-06.

Please note that throughout the report, reference is made to 'problem' and 'social' gamblers. Problem gambling, or pathological gambling, is defined by the American Psychiatric Association as 'persistent and recurrent maladaptive gambling behaviour that disrupts personal, family, or vocational pursuits', gambling that becomes a compulsion despite the negative consequences it causes. Social gambling is defined as, 'gambling which lasts for a limited amount of time with predetermined acceptable losses'. The survey uses the DSM-IV-MR-J screen to identify whether respondents who gamble are problem or social gamblers. Further details of this screen can be found in the Problem Gambling section below.

¹'Children' will be referred to throughout the course of this report, and for the purposes of this study were considered to be those aged 12 to 15 in full-time education. All children who took part were in school years 8 or 10 (S2 or S3 in Scotland).

² A small minority of participants stated their age as 11; this is likely to be pupils who were pushed up a year at school.

³ In total 4,446 boys and 4,447 girls were interviewed; data have been weighted by gender and region to ensure results were representative on these variables.

Key findings

Rates of past week gambling

The proportion of children buying National Lottery tickets with their own money in the seven days preceding their interview has fallen significantly in recent years. In the current survey two percent had played Lotto in the past seven days – down from five percent in 2005-06 – and four percent had bought scratchcards (down from six percent in 2005-06).

In line with the decline in the proportion of children actually spending money on National Lottery games, the proportion of children trying to buy tickets is also on a downward trend: two percent of children attempted to buy National Lottery tickets in the past seven days, compared with five percent in 2005-06; and four percent tried to buy scratchcards, down from eight percent in 2005-06.

Rates of gambling on other commercial and non-commercial forms of gambling have also fallen over time. One fifth (21%) of children had gambled (on any type of game) in the past seven days, down from 26% in 2005-06. Most significantly, rates of playing slot machines – although still higher than other forms of gambling among children – have fallen sharply from 17% in 2005-06 to nine percent currently⁴. This fall coincides with the increasingly limited availability of these machines following the introduction of new legislation.

Levels of problem gambling

Levels of problem gambling among young gamblers was assessed using a youth-adapted problem gambling screen (DSM-IV-MR-J). Rates of problem gambling have fallen since 2005-06⁵: 2% children were identified as problem

⁴ In 2008-09 we asked children to indicate whether they had played 'fruit machines' and 'other gambling machines' in the past seven days. In this report 'slot machine players' refers to children who ticked either or both 'fruit machines' and 'other gambling machines' categories. In previous surveys only 'fruit machines' were asked about. See section, Gambling in the past week, for more details.

⁵ The way in which questions used for the problem gambler screen were asked – and the way they were scored – were modified slightly on the current survey. Previously, the DSM-IV-MR-J problem gambling screen related only to fruit machine and

gamblers compared with 3.5% in 2005-06. It is likely that this drop reflects falling levels of gambling among children over time, particularly on potentially more addictive forms of gambling such as slot machines.

Deterrents to purchasing National Lottery tickets or scratchcards

When asked what would deter them from buying National Lottery tickets, a third (34%) of young gamblers say being asked to prove they were over 16 would be off-putting. However, among those who were refused when trying to buy a National Lottery ticket in the past seven days, 30% say they were refused once, 19% say they were refused twice, and 28% were refused more than twice⁶, suggesting that some children will persistently try to buy tickets, even if they are initially refused.

Where do children buy National Lottery tickets and scratchcards?

Children are most likely to buy their National Lottery tickets and scratchcards at cornershops and newsagents (62% of those who had bought in the past seven days used these outlets, which equates to two percent of all children buying tickets in these outlets), while supermarkets and other retailers are used much less frequently, suggesting that regulatory focus on this type of outlet may be of greatest value in tackling underage play.

Awareness of gambling advertising

More than three quarters (78%) of children recall recently seeing television adverts or internet pop-ups relating to the National Lottery and other gambling like poker, bingo and sports betting.

Those who had gambled in the past seven days (84% recall) and those who had played free gambling games online (82%) were more likely than average

scratchcard play, while on the current survey it covered all forms of gambling a child had engaged in within the past 12 months. In past surveys, only those answering all elements of the screen were classified as a problem/social gambler, while in the current analysis anyone who scored sufficient points to be classified as a problem gambler has been classified (even if all elements of the screen were not completed). These changes, if they have any impact on results, are likely to *increase* the proportion of problem gamblers identified in the population and we are therefore confident that the drop in the proportion of problem gamblers over time is real and not due to modifications in the way the screen was administered.

⁶ Another 23% could not remember how many times they had been refused.

(78%) to recall seeing gambling advertisements. Children who engaged in other illegal behaviours were also more likely than average to recall seeing gambling advertisements: for example, 82% who had taken illegal drugs and 83% who had played truant remembered these advertisements. The findings highlight the value of closely monitoring these types of advertisements to limit their potential appeal to underage players as far as possible.

Awareness of legal age limits

Children were asked to name the legal age limit for buying National Lottery tickets, buying cigarettes, buying alcohol, driving and placing a bet in a betting shop. Children were less likely to know the correct age limit for buying National Lottery tickets than any other activity asked about⁷. Underage National Lottery players, and those identified as problem gamblers, were more likely than average to say they thought National Lottery tickets could legally be purchased by people under the age of 16⁸. The findings suggest that work to promote the legal age limit for buying National Lottery tickets would be of value generally, and that this may also help to further limit rates of underage gambling, as some underage players are potentially unaware that they are too young to purchase tickets legally.

Perceptions of parent's views

Results across the survey indicate that parental influence and behaviour plays a key role in underage participation in gambling but that parents may be less likely to discuss gambling with their children than other potentially risky behaviours. For example, those who said their parents gambled were also more likely to gamble themselves (25%, compared with 12% of those who said their parents do not gamble). However, when asked to indicate how their parents would feel about children engaging in a number of potentially risky behaviours – such as smoking, taking drugs, drinking and gambling – children were less likely to know how their parents would feel about gambling on the

⁷ 47% correctly stated the National Lottery age limit, compared with 64% who stated the correct age for buying alcohol and 61% who knew the age limit for buying cigarettes

⁸ Among those who had done any gambling, 12% gave an age younger than 16; among National Lottery and Scratchcard players 17% stated an age under 16; and 22% of problem gamblers gave an inaccurately young age.

National Lottery or fruit machines than other behaviours (23% and 20% respectively did not know what their parents would think, compared with five percent who were unaware of their parents' views on cigarettes).

Free practice online gambling games

Despite high levels of internet use among children, relatively small numbers (one percent) had gambled with money online in the seven days preceding their interview. However, there is a strong relationship between playing free trial games online and 'offline' gambling. Regression analysis carried out by researchers at the University of Salford – which identified child characteristics that were associated with an increased probability of a child being a gambler or a problem gambler – revealed that playing free online gambling games in the past seven days was the single most important predictor of whether a child had gambled for money in the seven days preceding their interview, and one of the most important predictors of problem gambling among those who had gambled. The very high correlations might be interpreted as suggesting that it is not only the thrill of winning and losing money that makes a child gamble: those who are drawn to 'real' gambling are also attracted to 'pretend' gambling. The findings underline the importance of further research to investigate the relationship between playing trial games and real gambling, and the potential risks involved in children being able to access free trial games.

Characteristics of young gamblers

There were some interesting differences in gambling behaviours by ethnic group which may warrant further research. The regression analysis showed that Asian children were no more likely than white and black children to gamble but Asian children who gambled were more likely to be problem gamblers⁹.

⁹ This finding was true even when propensity to lie was removed from the analysis – results on lying about gambling were not driving the increased likelihood of Asian children being classified as problem gamblers, and therefore the possibility that stricter parenting among Asian families accounts for this difference does not appear to explain the difference.

The regression modelling showed that where children live has a limited effect on their gambling behaviours: broadly, child gambling and problem gambling patterns were similar for children with similar characteristics attending similar types of school irrespective of region.

Statistical analysis identified a number of characteristics which are associated with significantly higher probabilities of children becoming gamblers and, among underage gamblers, higher probabilities of displaying problem gambling behaviours. The regression models had a high degree of explanatory power, and could potentially be useful in targeting groups of children most at risk of developing problem gambling behaviours; for example, children attending schools where high proportions of the school roll are eligible for free school meals are more likely than those children attending schools where no pupils are eligible for free school meals to become problem gamblers, if they are gamblers (see section Characteristics of young gamblers, and Appendix 5 for full details).

Conclusions

The National Lottery Commission has commissioned several surveys to examine rates of child gambling in the past decade; the overall trends in youth participation revealed in these studies are encouraging. Not only are rates of seven-day gambling on the National Lottery on the decline but smaller proportions of children are *attempting* to buy National Lottery tickets and scratchcards. More generally, rates of gambling among children (on any type of game) are falling and, in line with this, the proportion of children classified as “problem gamblers” has also fallen significantly over the past ten years.

While some of the trends in participation over time are indicative, due to changes in the way questions were phrased across surveys, there appears to be a steady trend towards falling participation, as illustrated in the table below.

Table 13: Indicative trends over time in attempted and actual purchasing of gambling tickets.
Note: due to changes in question wording across waves of the survey, not all findings are strictly comparable (please see footnotes for details) and indicative comparisons are not always available

	<i>Attempted to buy in preceding seven days¹⁰</i>		<i>Actually spent money in preceding seven days on ...¹¹</i>			<i>Problem Gambler¹²</i>
	<i>NL ticket</i>	<i>Scratchcard</i>	<i>Lotto</i>	<i>Scratchcard</i>	<i>Any gambling</i>	
1996-7	N/A	N/A	12%	8%	N/A	N/A
1999	N/A	N/A	11%	12%	N/A	N/A
2000	9%	8%	8%	9%	N/A	4.9%
2005-06	5%	8%	5%	6%	26%	3.5%
2007 YPO ¹³	N/A	N/A	4%	3%	23%	N/A
2008 YPO ¹⁴	N/A	N/A	5%	4%	20%	N/A
2008-09	2%	4%	2%	4%	21%	2%

¹⁰ Wording has changed over time for this question. Most significantly, before 2008-09 children were asked about whether they had 'gone into a shop or supermarket' to try to buy tickets, whereas no location was specified on the current survey wording.

¹¹ Note that question took similar format from 2005-06 to 2008-09: children were shown a list of gambling games and asked to indicate which they had spent their money on in the past seven days. In 1996-2000 children were asked separately whether they had played the main National Lottery draw (with options for yes and no) and scratchcards. The format of the question is likely to have some impact on the higher participation figures in the earlier surveys.

¹² In 2008/09 problem gambler screen administered for all gambling games played in past 12 months; in 2000-2005-06 related to scratchcards and fruit machines only. Classification criteria also differed in 2008-09: all those scoring four or more points classified as problem gamblers, irrespective of whether full screen completed. In previous years, only those answering all nine component questions were classified.

¹³ Young People Omnibus covered children in curriculum years 7-11. Results are based on students in curriculum years 8 and 10 only for comparability with current survey. (N=850)

¹⁴ Young People Omnibus covered children in curriculum years 7-11. Results are based on students in curriculum years 8 and 10 only for comparability with current survey. (N=825)

There are several possible factors behind the fall in participation over time. The National Lottery Commission itself seeks to ensure that there are controls in place to protect against underage play. Camelot, for example, have a strategy to ensure that the design and promotion of National Lottery games do not encourage underage play. In addition, the licence requires the operator to conduct test purchases to ensure retail sales are not made to Under 16 year olds

Over time, these activities have reported increasing success: in 2008 Camelot made over 9,000 checks on retailers, and 93% refused to sell tickets to customers who looked underage¹⁵. More generally, changes in legislation to limit the availability of slot machines in non-gaming-specific venues (e.g. fish and chip shops) have coincided with a steep fall in the proportion of children reporting they have played these machines in the seven days prior to their interview. Taken together, these findings suggest that regulatory activity can play an effective role in tackling child gambling.

To some extent, falling participation on National Lottery products among children mirrors patterns observed among adults over the same period of time. For example, the British Gambling Prevalence Survey (BGPS) found that 47% adults had purchased tickets for the main National Lottery draw (Lotto) in the week preceding their interview in 1999; this fell to 33% in 2007¹⁶. Given the importance of parental influence in children's involvement in gambling, it seems likely that falling levels of interest in the National Lottery among adults have directly impacted on children's participation.

In a review of the youth gambling literature, May-Chahal et al. (2004)¹⁷ found no evidence that youth gambling prevalence rates varied across jurisdictions according to regulatory practices. One possible reason for this is that, if denied easy access to commercial gambling, children may simply substitute

¹⁵ <http://www.nfrnonline.com/cgi-bin/item.cgi?id=535>

¹⁶

<http://www.gamblingcommission.gov.uk/UploadDocs/publications/Document/Prevalence%20Survey%20final.pdf>, Table 29, p. 34

¹⁷ May-Chahal et al, *Young People and Gambling in Britain; Systematic and Critical Review of the Research Literature Relating to Gaming Machine, Lottery and Pools Coupon Practice by Children and Young People Under 18*, DCMS, London, Technical Paper No. 8, November 2004

gambling among themselves. However, the survey data show that, here, rates of participation in non-commercial forms of gambling (e.g. playing cards for money with friends) are also on the decline, suggesting that perhaps gambling has simply become less appealing to children.

While rates of participation in gambling are falling, the survey data indicates a high level of awareness of gambling among children. For example, 78% children recalled seeing an advertisement for gambling on television or the internet in the seven days preceding their interview. Open-ended data captured at the end of the survey also suggested that children are highly aware of gambling advertising: advertisements were spontaneously mentioned by children when they were asked what they thought about when they heard the word 'gambling', for example. Those who had gambled in the past seven days were slightly more likely than average to recall seeing these types of advertisements (82% compared with 78%). The findings highlight the value of continued vigilance in monitoring gambling advertisements to limit their potential appeal to children.

The survey results also indicate that education campaigns around the legal age for gambling, and the potential risks of gambling, may be of value. When asked to state the legal age limit for purchasing National Lottery tickets, cigarettes and alcohol, and for driving and placing a bet in a betting shop, children were less likely to give the correct age limit for the National Lottery than for any of these other activities. In total, just under half (47%) correctly stated the National Lottery age limit; this compared with 61% who correctly stated the legal age for buying cigarettes as 18, despite the fact that that cigarette purchasing limit has changed quite recently. Those who had actually played the National Lottery were more likely than average to state that the legal age limit was under 16. It is not implausible to think that some children may genuinely be unaware that the legal age limit is under 16 (particularly, for example, where they have played National Lottery games alongside parents) and education campaigns to educate children about the legal age limit may be useful in further reducing rates of child gambling.

In line with previous surveys, the research highlighted that parental influence can play a key role in children's gambling. Statistical regression modelling,

for example, showed that having parents who bet is associated with significantly higher probabilities of child gambling. However, when children were asked how their parents would feel about children their age taking part in a number of potentially risky behaviours, children were much less likely to know how their parents would feel about gambling than other activities such as smoking and drinking. The data suggests that parents are less likely to discuss gambling with their children than other issues.

While rates of participation are falling, it appears that children are fairly persistent in their attempts to buy National Lottery tickets. For example, the results indicated that, among those who had purchased a National Lottery ticket in the past seven days, an average of 2.3 attempts had been made to buy tickets. When asked what would deter them from buying tickets again in the future, the most frequently cited answer was being refused by the shopkeeper. The results suggest that continuing strict controls and checks on retailers will help to contain youth gambling.

Although small numbers of children had gambled online for money in the past seven days, the statistical regression analysis showed a strong relationship between children playing free trial games online and gambling offline. Playing free online gambling games in the past seven days was the single most important predictor of whether a child had gambled for money in the past seven days, and one of the most important predictors of problem gambling among those who had gambled. Although only small numbers of children have managed to gamble money online in the past seven days, the research findings suggest that further research to investigate the relationship between playing trial games and real gambling, and the potential risks involved in children being able to access free trial games, would be useful.

The regression models identified a number of characteristics that are statistically associated with higher probabilities of children gambling, and of child gamblers developing problem behaviours, some of which may warrant further exploration:

- Asian children were no more likely than white and black children to gamble; however, Asian children who gamble were more likely to be problem gamblers.
- Children living in households without siblings were more likely than those who lived with siblings both to gamble and to display problem gambling traits.
- Children with more pocket money or earning more income were much more likely to gamble and, if they did so, rather more likely to display problem gambling traits.
- Children attending schools with more deprived student populations were slightly less likely to gamble than those attending schools with more affluent student bodies, but, where they gambled, were much more likely to display problem gambling characteristics.
- The regression models, when used to forecast the probability of a child gambling and the probability that a child gambler would also be a problem gambler, generated very different forecasts for children with different profiles. This makes it feasible that results from the model could inform practical choices on whether youth workers should be particularly alert to gambling issues in respect of some of their clients and which groups of children (for example, those in deprived schools) might be most effectively targeted in terms of problem gambling education.
- The methods developed for the regression analysis could equally inform policy towards child drinking, smoking and drug-taking since this survey also collected information on children's habits in these areas.

Introduction

This report contains the findings from the 2008-09 British Survey of Children and Gambling. The work was carried out on behalf of the National Lottery Commission by Ipsos MORI's Social Research Institute in partnership with researchers from the University of Salford.

Policy background

The National Lottery Commission asked researchers from Ipsos MORI and the Centre for the Study of Gambling at the University of Salford to conduct a prevalence study to measure participation in gambling and the National Lottery among 12 to 15 year olds in Britain. The research is carried out as part of the Commission's duty under the 1994 National Lottery Regulations to ensure there are effective controls in place to prevent under 16s from playing the National Lottery.

Gambling legislation relating to children and adolescents

The age limits and key regulations concerning children and gambling are summarised below¹⁸:

- **National Lottery:** Children may play and sell national lottery tickets and scratch cards from the age of 16;
- **Bingo:** Children of any age can enter the non-gaming area of a bingo club but must be 18 or older to play the game;
- **Football pools:** From the age of 16, children may bet on the football pools;
- **Betting shops:** From age 18 children may enter a betting shop, place a bet, and work there;

¹⁸

http://www.natlotcomm.gov.uk/UploadDocs/Contents/Documents/Under%2016s%20and%20the%20National%20Lottery_Final%20report.pdf

- **Casinos:** At age 18 a person can enter any premises where gaming takes place including casinos; and
- **Gambling machines:** Individuals of any age are able to play category D fruit machines for a maximum prize of £5, and a maximum stake of 10p (or, if the prize is paid in tokens, a maximum prize of £8 and maximum stake of 30p). These are typically found in arcades (family entertainment centres). Machines in other categories are not permitted to be played by under 18s. If located in an arcade, category B and C machines must be located in an adult only area.
- **Non-commercial (private) gambling:** No age limits apply to this type of gambling, which could include activities such as charity poker nights, or playing cards for money with friends.

Tracking underage participation in gambling

In recent years, the Commission has conducted regular tracking surveys of 12 to 15 year olds to assess trends in levels of National Lottery play and other gambling, and rates of problem gambling, among this age group.

Findings from Ipsos MORI's work for the Commission over recent years have been encouraging, showing that youth participation in National Lottery games is on a downward trend (11% had played on a National Lottery gambling game in the seven days preceding their interview in 2005-06, which fell to 8% in 2007 and 2008¹⁹). Furthermore, coinciding with legislative changes banning fruit machines in non-arcade venues that were introduced in August 2006, Ipsos MORI's work for the Commission shows that rates of past-week gambling on fruit machines among 12 to 15 year olds fell from 19% in 2005-06 to 9% in 2007.

However, Ipsos MORI's previous work for the Commission also shows a jump in participation on National Lottery games among children aged 16 and legally

¹⁹ Responses for pupils in Years 8 and 10 only used for 2007 and 2008 figures to allow comparability with 2005-06 data.

entitled to play, compared with 11-15 year olds²⁰, suggesting there is a latent demand and interest in the National Lottery among children.

Moreover, the growing availability of online gaming sites over the past few years has created new considerations for regulators. Ipsos MORI's recent work for the National Lottery Commission shows that children are very savvy internet users and small numbers of children claim to access the National Lottery website and gamble online.

More recently, the 2005 Gambling Act has changed the legislative landscape considerably. In particular, gambling operators' new freedom to advertise their products means that children could potentially become much more aware of gambling; there is also a risk that advertising may increase the appeal of gambling for children.

Research aims and objectives

In addition to tracking rates of youth gambling over time, the research also aimed to investigate the appeal and barriers to playing the National Lottery among children, and look at factors that may deter play. Specifically, the survey aimed to:

- Measure current levels of gambling among 12 to 15 year olds, including levels of addictive gambling;
- Compare levels of gambling on the National Lottery with underage participation in other forms of gambling such as slot machines;
- Profile young gamblers, and those who show a predisposition towards problem gambling behaviours;
- Investigate levels of exposure to free trial gambling games on the Internet and rates of play of online gambling games;
- Look at the awareness of gambling advertising, the appeal of gambling and barriers that do, or would, prevent children gambling; and

²⁰ For example, results on the 2007 Young People Omnibus survey showed that nine

- Assess children's awareness of age restrictions affecting young people's participation in gambling and other activities.

In addition to these aims, statistical modelling carried out by researchers at the Centre for the Study of Gambling at the University of Salford was designed to build on the data analysis to generate new insights into the factors that drive under-age play, and to identify circumstances in which young gamblers are most at risk of developing addictive behaviour.

Study design

The methodology

A survey of 8,958 children in Great Britain aged between 12 and 15 years was carried out through interviewer administered paper self-completion sessions in classroom lessons. This is the same data collection method as used in all previous studies, although Scotland was covered by the current survey but not in previous iterations. A detailed note on the survey methodology can be found in Appendix 1.

Fieldwork for the study was conducted between 20 October 2008 and 13 February 2009.

Sampling approach

The survey population is 12-15 year-olds living in Great Britain. As in previous waves of the survey, a two-stage sampling approach was adopted.

In the first stage a random sample of 904 schools was selected and invited to participate in the survey (825 in England and Wales and 79 in Scotland). The sampling universe included LEA, voluntary aided/controlled and foundation schools, but excluded special schools²¹ and sixth form colleges. This sampling frame was stratified by Government Office Region (GOR) and,

percent of children aged 11-15 had spent their money on a National Lottery game in the seven days preceding their interview but this increased to 24% of 16 year olds.

²¹ Special schools refers to those schools for excluded pupils, and those with special educational needs or disabilities.

within each stratum, schools were selected proportional to the size of the school register.

Within each school, interviewers attempted to survey two class groups (one in curriculum year 8 and one curriculum year 10; one S2 and one S3 in Scotland) to provide a sample of 12-15 year olds. Ipsos MORI interviewers selected one class group to be interviewed in each curriculum year using a random selection procedure (kish grid). In classes where four or more students were absent during the self-completion session, up to two follow-up visits were arranged to interview absent pupils. Overall, 201 schools participated and fully completed questionnaires were obtained from 8,598 pupils, an average of 22 pupils per class.

The profile of children who participated in the research is shown in Table A below. A more detailed breakdown of the composition of the achieved sample is included in Appendix 2.

Table A	Profile of participating children		
	Unweighted		Weighted
	N	%	%
<i>Gender</i>			
Male	4466	50	51
Female	4447	50	49
Not stated	45	1	1
<i>Curriculum Year</i>			
8	4695	52	51
10	4263	48	49
<i>Age</i>			
11	35	*	*
12	2921	33	33
13	1725	19	19
14	3034	34	34
15	1210	14	14
Not stated	33	*	*
<i>Ethnicity</i>			
White	7680	86	86
Asian	593	7	6
Black	268	3	3
Other	74	1	1
Not Stated	85	1	1
<i>Base: All children</i>	<i>8,958</i>	<i>100</i>	<i>100</i>

Questionnaire design

Questionnaires were designed by Ipsos MORI, in consultation with the National Lottery Commission and researchers at the University of Salford. Following the drafting of the survey, a series of cognitive interviews were held

with 15 children aged 12-15. Cognitive testing works like qualitative interviews, and aims to assess how respondents interpret and understand questions, the thought-processes they use to formulate their answers, and the types of factors and information they retrieve when considering their responses. Ultimately, this type of testing helps to ensure that respondents interpret and understand questions in the ways intended by researchers. Following these interviews, several changes were made to simplify the questions and the survey layout (please see the Appendices for details).

Due to changes in the order, layout and phrasing of questions which were made to improve the current survey, not all questions are comparable with surveys conducted in previous years, or comparisons can only be made indicatively. Any changes which affect comparability of results are referenced in the main body of the report.

Data analysis and editing

All data analysis was carried out by Ipsos MORI Data Capture (DC). Where there were open-ended questions, the coding department at DC, in consultation with the research team, created a new set of response categories (codes). Where respondents answered 'Other', and these categories accounted for more than 10% of the total responses to the question, the verbatim answers were either classified into the existing categories listed on the questionnaire (where appropriate) or new categories were created.

Ipsos MORI Data Services carried out any editing required of the data as a result of misinterpretation of routing instructions on the part of the children who completed the survey questionnaires. Further details of the required edits can be found in Appendix 3.

Data weighting

After examining the profile of the data collected we took the decision to weight the data by region and gender so that the weighted profile of the survey data matched the known profiles on both variables. Region and gender weights

were applied because these aspects of the sample profile of our survey data differ slightly from the known profiles of the population, as recorded by the DCSF.

Further details of the weighting scheme applied can be found in Appendix 1.

Publication of the data

As with all our studies, findings from this survey are subject to our standard Terms and Conditions of Contract. Any press release or publication of the findings requires the advance approval of Ipsos MORI. Such approval will only be refused on the grounds of inaccuracy or misrepresentation.

Acknowledgements

It is clear that schools are working under ever increasing pressures from a number of different sources. Furthermore, they receive frequent requests to participate in surveys similar to this. Therefore, we wish to record our gratitude to the many schools who participated and we are indebted to all the pupils and staff who made this survey possible.

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Gambling in the past week

This chapter examines rates and patterns of past-week gambling amongst children. It looks at rates of participation in a range of National Lottery and other gambling games, and how rates of play have changed over time; it also examines the amount of money children spent on the Lotto and scratchcards in the seven days preceding their interview, and where children bought their tickets.

Rates of past-week gambling

Children were asked to indicate, *Have you spent any of YOUR money on any of the following in the past 7 days?* and presented with a list of gambling games. They were reminded to select only games they had played themselves²². Rates of seven-day play are considered the key measure of gambling rates, as they are a more accurate indicator of regular gambling activity than past year or lifetime play. As shown in Figure 1, just over a fifth of children (21%) had gambled using their own money in the seven days preceding their interview which is significantly lower than the 26% recorded in 2006.

Two percent of children had played the Lotto in the week preceding their interview, a drop of three percentage points since 2006. Levels of scratchcard play have also fallen over time: four percent of children had spent money on scratchcards in the seven days prior to their interview. This represents a fall of two percentage points from 2006 when six percent claimed to have bought scratchcards in the preceding seven days.

Replicating findings from previous survey waves, the most widely played games among children were forms of gambling excluding the National Lottery. As in all previous surveys, slot machines were more widely played than any other gambling game (nine percent). Non-commercial forms of gambling were also relatively popular: seven percent had made private bets

²² N.B. Clarifying wording in 2006 was slightly different and some of the options are new this year. 2006 wording: *Remember this is about games that you might have played and not your parents.*

with friends and seven percent played card games with friends in the seven days preceding their interview.

Since the survey was last conducted in 2006, new legislation has limited the availability of slot machines in non-gaming-specific public spaces, such as fish and chip shops and taxi offices. This change has coincided with a steep drop in child slot machine play²³.

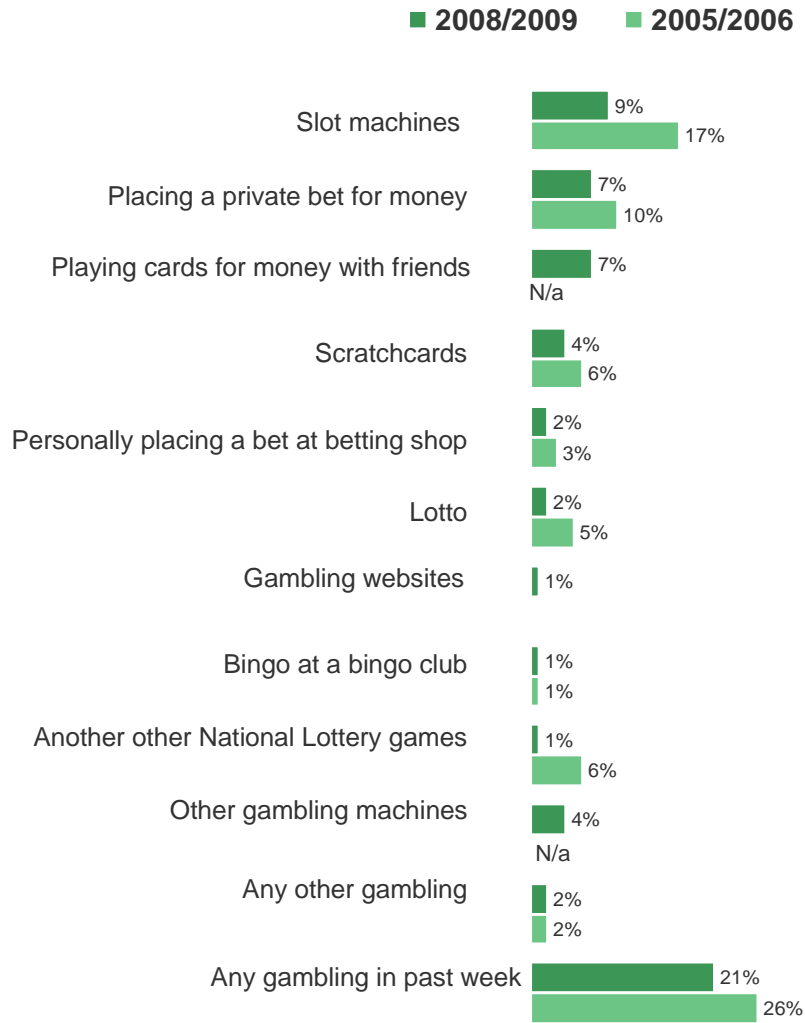
It should be acknowledged that changes were made to the questionnaire in the current survey to more accurately assess the rate of slot machine play. During the cognitive interviewing stage, some children appeared to make a distinction between fruit machines and other slot machines. Therefore, rather than asking children only about whether they had played 'fruit machines' (as on previous surveys) an additional category was added to the questionnaire to capture play on 'other gambling machines'. Responses in this report are aggregated to form one category – 'slot machines' – which includes those who indicated they had spent money on *either or both* of fruit and other gambling machines. As can be seen from Figure 1, participation on this form of gambling has halved from 17% in 2006 to just nine percent playing slot machines in the current survey. Nevertheless, slot machine gambling continues to be the most popular type of gambling activity among this age group.

²³ The 2005 Gambling Act prohibits the issuing of new licences allowing machines to be located in non-gaming specific areas. However, while no new licences are being issues, existing licences were allowed to run their course; the final outstanding licenses are due to expire in 2009.

Figure 1²⁴

Gambling participation

Q Have you spent any of YOUR money on any of the following in the past 7 days? We want to know about games you played yourself



Base: All respondents Fieldwork dates: November 2008-February 2009 (8,958),
Fieldwork dates: September 2005-February 2006 (8,017)

Ipsos MORI



²⁴ Note: respondents could give more than one answer.

Table 1 gives an indication of trends in Lotto and scratchcard participation over the past 13 years. Although the way questions are phrased has changed over time in some cases, and therefore comparisons are indicative only before 2005-06, there appears to be a steady downwards trend in participation.

Table 1: Indicative trends over time for past seven day gambling ²⁵

Year	Lotto	Scratchcard	Any gambling
1996-7	12%	8%	N/A
1999	11%	12%	N/A
2000	8%	9%	N/A
2005-06	5%	6%	26%
2007 ²⁶	4%	3%	23%
2008 ²⁷	5%	4%	20%
2008-09	2%	4%	21%

Table 2 compares the profile of the past week gambler with aggregate figures for the entire sample. Rates of gambling were relatively high among boys, older groups, and those with higher incomes.

Asian children were less likely than other children to have gambled in the seven days preceding their interview. There was, however, no difference in the likelihood of Asian children gambling on the National Lottery when compared with children on average.

Previous studies, as well as the results from the current research, reinforce the significance of parental gambling in children's gambling behaviours.

²⁵ Note that question took similar format from 2005-06 to 2008-09: children were shown a list of gambling games and asked to indicate which they had spent their money on in the past seven days. In 1996-2000 children were asked separately whether they had played the main National Lottery draw (with options for yes and no) and scratchcards. The format of the question is likely to have some impact on the higher participation figures in the earlier surveys.

²⁶ Young People Omnibus covered children in curriculum years 7-11. Results are based on students in curriculum years 8 and 10 only for comparability with current survey. (N=850)

²⁷ Young People Omnibus covered children in curriculum years 7-11. Results are based on students in curriculum years 8 and 10 only for comparability with current survey. (N=825)

(Fisher, 1993²⁸; Wood & Griffiths, 1998²⁹). Similarly, many studies have indicated a strong link between adult problem gamblers and later problem gambling amongst their children (Ide-Smith & Lea, 1988³⁰; Fisher, 1992). This is particularly worrying because a number of studies have shown that when people gamble as adolescents, they are then more likely to become problem gamblers as adults (Griffiths, 1990³¹; Huxley & Carroll, 1992³²; Fisher, 1992³³).

Other factors that have been linked with adolescent problem gambling include working class youth culture, delinquency, alcohol and substance abuse, poor school performance, theft and truancy (Griffiths, 1994³⁴; Yeoman & Griffiths, 1996³⁵; Griffiths, 2002³⁶). Our findings confirm the link between both truancy and gambling and drug use and gambling.

Again confirming previous research, children who engage in illegal risk-taking behaviours – such as smoking, taking illegal drugs, and playing truant – were also more likely to gamble, both generally and on the National Lottery.

²⁸ Fisher, S.E. (1993). The pull of the fruit machine: A sociological typology of young players. *Sociological Review*, 41, 446-474.

²⁹ Wood, R.T.A. & Griffiths, M.D. (1998). The acquisition, development and maintenance of lottery and scratchcard gambling in adolescence. *Journal of Adolescence*, 21, 265-273.

³⁰ Ide-Smith, S. & Lea, S.E.G. (1988). Gambling in young adolescents. *Journal of Gambling Behaviour*, 4, 110-118.

³¹ Griffiths, M.D. (1990). The acquisition, development and maintenance of fruit machine gambling. *Journal of Gambling Studies*, 6, 193-204.

³² Huxley, J. & Carroll, D. (1992). A survey of fruit machine gambling in adolescents. *Journal of Gambling Studies*, 8, 167-179.

³³ Fisher, S.E. (1992). Measuring pathological gambling in children: The case of fruit machines in the U.K. *Journal of Gambling Studies*, 8, 263-285.

³⁴ Griffiths, M.D. (1994). Co-existent fruit machine addiction and solvent abuse: A cause for concern? *Journal of Adolescence*, 17, 491-498.

³⁵ Yeoman, T. & Griffiths, M.D. (1996). Adolescent machine gambling and crime. *Journal of Adolescence*, 19, 183-188.

³⁶ Griffiths, M.D. (2002). *Gambling and Gaming Addictions in Adolescence*. Leicester: British Psychological Society/Blackwells.

Table 2 *Characteristics of past-week gamblers and past week National Lottery players*

	2008-09		All who gambled in past seven days	All who played National Lottery in past seven days	All who did not gamble in past seven days
Total	(8,958)	%	21	5	76
Gender					
Boys	(4,537)	%	28	7	69
Girls	(4,376)	%	13	3	84
Year Group					
Year 8	(4,685)	%	20	5	77
Year 10	(4,273)	%	22	5	75
Ethnicity					
White	(7,737)	%	21	5	76
Asian	(576)	%	14	6	73
Black	(246)	%	23	6	81
Money received in past seven days					
Nothing	(943)	%	14	4	83
Up to £10	(2,991)	%	16	3	82
£10-£30	(3,596)	%	23	5	74
Over £30	(1,043)	%	37	11	60
Parents gamble					
Yes	(5,604)	%	25	6	73
No	(2,120)	%	12	2	85
Behaviour					
Has played truant	(496)	%	45	13	53
Has taken drugs	(2,917)	%	33	8	64
Newspaper at home					
	(2,056)	%	23	5	75
Tabloid	(5,548)	%	24	6	73

A more detailed exploration of the characteristics of gamblers (and problem gamblers) can be found in the section below, profiling young gamblers, which uses regression modelling techniques to isolate the independent effect of these characteristics on children's likelihood of gambling.

Amount spent on gambling

In order to assess levels of spending on National Lottery tickets in the seven days preceding their interview children were asked *How much of your own money did you spend on National Lottery tickets (e.g. Lotto and Euromillions) in the past 7 days?*³⁷. The same question was asked about scratchcards.

Figures 2 and 3 are based on all children who have played National Lottery games in the past seven days with their own money and specified the amount of money they spent on each game. The majority of these young players (63%) spent £2.00 or less on National Lottery tickets in the seven days preceding their interview. Bearing in mind that most National Lottery tickets and scratchcards retail at £1 or £2 per ticket, this would suggest that, where played, young players typically buy one or two tickets³⁸.

Overall spending levels have fallen since 2006 when a quarter spent more than £5.00 on National Lottery tickets (compared with only eight percent in the current survey). It should be noted, however, that a change in the numeric scale used on the questionnaire (i.e. from which children selected the amount they had spent on games) may have impacted on the results. On the current survey the maximum point on the scale was '£5.01 or more', compared with '£30.01 or more' on the 2006 survey³⁹; survey literature indicates that respondents have a tendency to avoid selecting extreme categories in a questionnaire and so this change may have encouraged more conservative estimates of spending.

³⁷ N.B. Wording in 2006 asked about Lotto only, and the scale provided was larger (up to £30.00 or more).

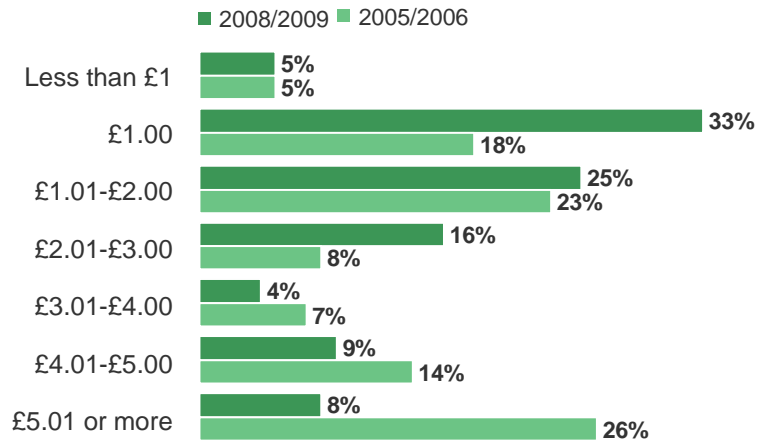
³⁸ Although there are £5 scratchcards available, the majority of sales are for £1 and £2 scratchcards.

³⁹ N.B. The reason for this change was to simplify the question scale for children. The previous version was thought to be confusing due to the number of response categories.

Figure 2

Past-week spending on National Lottery tickets

Q How much of your own money did you spend on National Lottery tickets (e.g. Lotto and EuroMillions) in the past 7 days?



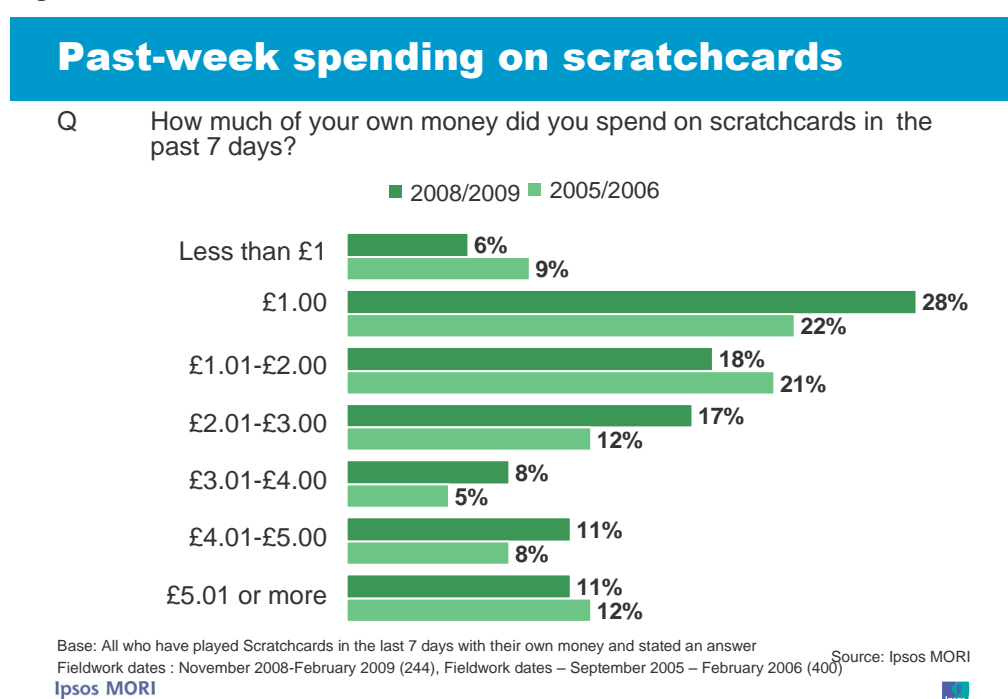
Base: All who have played Lotto or NL games in the last 7 days with their own money and stated an answer
Fieldwork dates: November 2008-February 2009 (105), Fieldwork dates – September 2005 – February 2006 (276) Source: Ipsos MORI

Ipsos MORI



Scratchcard spending among those who buy scratchcards has remained stable between the two survey dates, with the majority of scratchcard players spending between £1.00 and £2.00 at both time points. Young players tend to spend slightly larger amounts on scratchcards than on National Lottery tickets: 30% of scratchcard players had spent more than £3 in the seven days preceding their interview compared with 21% of National Lottery players. Among those who played scratchcards, the average amount they spent on the tickets was £3.66 which is slightly higher than the average £3.41 spent on National Lottery tickets.

Figure 3



Where do children buy National Lottery tickets and scratchcards?

Cornershops and newsagents were the most common places for children to buy National Lottery tickets and scratchcards. Three in five (62%) of those who indicated they had played these games in the seven days preceding their interview, and specified where they bought them, purchased from these retailers. The supermarket was the next most common retailer used by gamblers with just over a quarter (26%) saying that they bought their tickets

there. Preferential purchase from shops rather than supermarkets is in line with findings from other surveys about underage purchasing⁴⁰.

Among Lottery and scratchcard players, smaller numbers had purchased from post offices (14%), petrol stations (11%) or shopping centre stalls (seven percent).

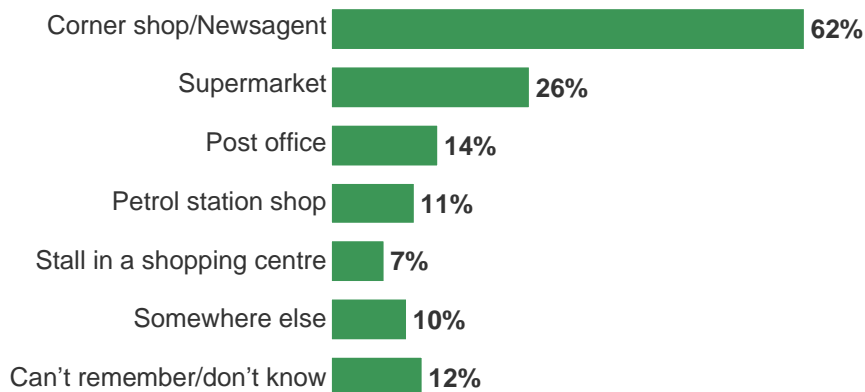
Findings on the location of ticket purchases can only broadly be compared to 2006 because the previous survey asked separately about National Lottery ticket and scratchcard purchasing. In addition, new answer options (post office and petrol station shop) were added to the current survey. However, it is possible to see a significant drop in the percentage of supermarket purchases from 32% for Lotto and 31% for scratchcards in 2006, to 26% collectively in 2008-09.

⁴⁰ In a survey of smoking habits among 9,715 children aged 11-15, respondents were most likely to get cigarettes from shops: 58% of pupils said they bought their cigarettes from a newsagent, tobacconist or a sweet shop, 29% from a garage shop, 21% from a supermarket and 12% used another type of shop. This echoed findings from previous waves of the research. From *Smoking, drinking and drug use among young people in England in 2004*. National Centre for Social Research, 2004 <http://www.dh.gov.uk/assetRoot/04/12/34/32/04123432.pdf>

Figure 4⁴¹

Location of ticket and scratchcard purchases

Q From the list below, can you tell us where you bought National Lottery tickets (e.g. Lotto and EuroMillions) or scratchcards in the past 7 days



Base: All who have played NL or Scratchcards in the past 7 days with their own money and stated a location (308) Source: Ipsos MORI

Ipsos MORI



Among those who played National Lottery games and scratchcards in the seven days preceding their interview, and stated the location of their purchase, supermarkets were more commonly used by boys than girls (30% compared with 18%), while corner shops or newsagents were preferred by older groups (69% in curriculum year 10 compared with 62% on average).

⁴¹ Note: respondents could select more than one answer.

Internet gambling

Gambling online has become increasingly popular in recent years, with a host of gambling websites offering access to games such as poker, bingo and blackjack. These websites are widely advertised via internet pop-ups, on television and in print media. The National Lottery website has been offering online gambling games since 2003, but has rigorous security settings in place to prevent access by children. However, other research among children shows that many are proficient users of the internet; as such, the Commission was keen to investigate the numbers of children accessing and playing the National Lottery website, as well as other gambling websites. This chapter looks at patterns of internet use and internet spending among children, and their experience of playing free or trial gambling games on the internet.

Internet usage

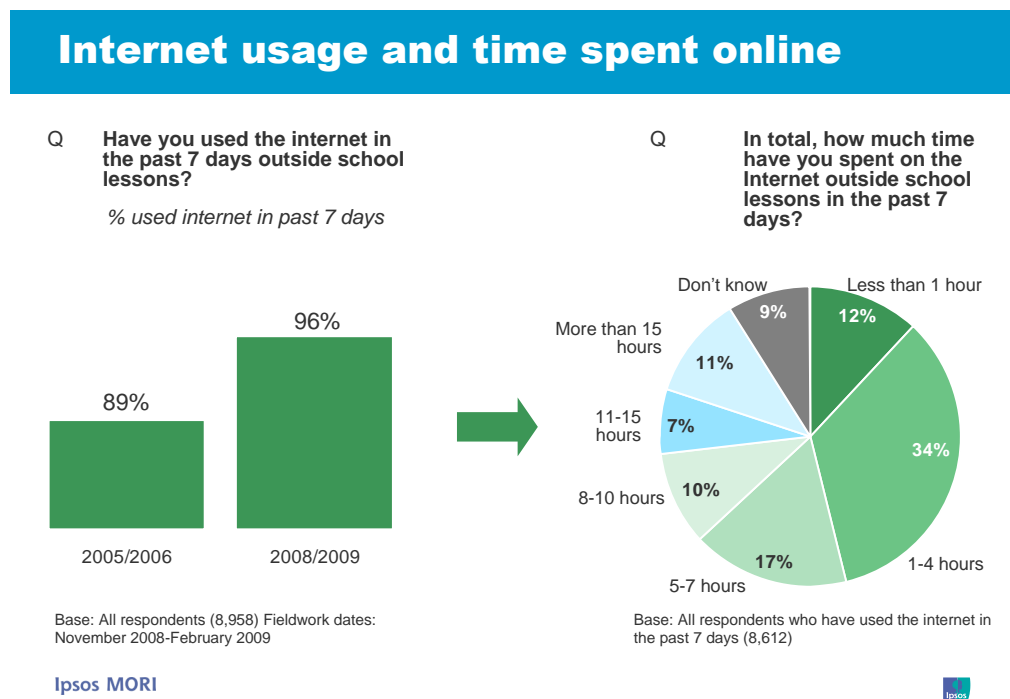
The vast majority of children (96%) indicated they had used the internet in the past seven days, an increase of seven per cent since 2007/8⁴².

Rates of internet use tend to increase with age; those aged 15 years were significantly more likely than those aged 12 to 13 years to have used the internet outside school in the past seven days (98% compared with 95% respectively).

As illustrated in Figure 5, those who had used the internet outside school in the past seven days were most likely to have done so for between one and four hours (34%) but some spent significantly longer periods of time online. Over a quarter said they had spent at least eight hours online outside school time in the preceding seven days (28%) while one in ten spent more than fifteen hours (11%). A similar proportion spent minimal time online, however, claiming that they used the internet for less than one hour (12%).

⁴² The National Lottery Commission added questions about internet usage on Ipsos MORI's Children Omnibus in 2007-08.

Figure 5



Boys tended to spend slightly less time online than girls with 13% saying they spent less than an hour online in the preceding seven days, compared with 11% of girls.

Those in their mid-teens spent longer periods of time online than their younger peers: 36% of 14 year olds and 38% of 15 year olds said they spent more than eight hours online in the seven days preceding their interview, compared with just 20% of 12 year olds and 24% of 13 year olds.

Table 3: Proportion of children who spent eight hours or more online in the past seven days – by age

Age	%
12	20
13	24
14	36
15	38

Source: Ipsos MORI

There is also a correlation between pocket money received and time spent online – those who received nothing, or up to £10 in the last week, spent less

time online than those who received over £30 (22% of the lower earners spent eight or more hours online compared with 39% receiving over £30).

Those who had spent money on gambling games in the seven days preceding their interview were more likely to spend a lot of time online than average (36% compared with 28% spent eight or more hours), with those who played free or practice games online particularly likely to have used the internet for a long period of time (40% used it for eight more hours).

Perceived parental leniency is also a contributing factor – those who said their parents would condone children their age playing the National Lottery were more likely to have spent eight or more hours online than average (43% compared with 28%).

Spending money online

The majority (68%) of those who had used the internet outside school in the seven days prior to their interview had not spent their own money online, although over a quarter (27%) indicated that they had.

Children's reported spending patterns reflect a diverse range of hobbies, interests and lifestyle purchases (see Figure 6). The most popular seven-day online purchases were clothes and shoes, mentioned by 10% of children, while music CDs and downloads (nine per cent) and computer games (eight per cent) were the next most frequently purchased items.

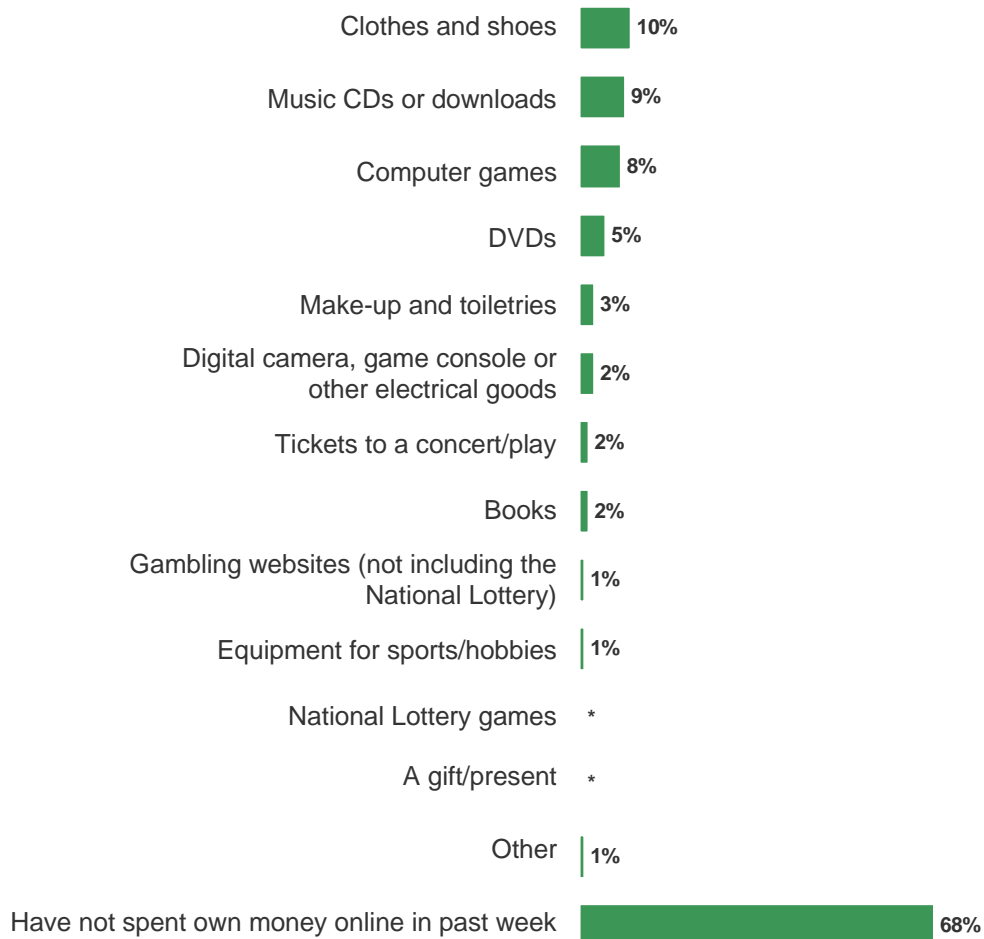
Rates of spending on gambling were relatively low: one per cent said that they spent their money on gambling websites (other than the National Lottery website) while fewer than one per cent had spent their money on National Lottery games online⁴³.

⁴³ In terms of raw numbers, 26 children said they had spent money on National Lottery games online (0.3% of all children interviewed), and 61 had gambled on other websites (0.7% of all children interviewed). In total 79 children (0.9%) had spent money on *either* online National Lottery websites or other gambling websites.

Figure 6

Online spending patterns

Q Have you spent any of YOUR money on any of the following in the past 7 days?



Includes all categories mentioned by 25 or more respondents

Base: All who had used internet in past seven days (8,621)

Fieldwork dates: November 2008-February 2009

Ipsos MORI



Boys were more likely than girls to say that they had spent their money on the internet in the seven days preceding their interview (30% compared with 23% respectively).

Perhaps unsurprisingly, those who had been given or earned more than £30 in the preceding seven days were more likely to have spent money online than those who received no money (38% compared with 23% of those who did not receive any money).

Possibly reflecting higher rates of internet use, older groups were more likely than younger children to have spent money online (28% in curriculum year 10 had spent online in the past seven days compared with 25% of year 8 pupils).

There were some differences by ethnic background, with those from a black or white background more likely than Asian children to have spent money online (31% and 27% compared with 22% respectively).

Children who had gambled in the seven days preceding their interview were also more likely to have spent money online (45% compared with 27% on average), with scratchcard players particularly likely to have done so (55%).

Free practice online gambling games

Many websites now offer the opportunity to play free or practice online gambling games, which allow users to trial the games without putting their money at risk. Some observers⁴⁴ are concerned that these types of games – which, unlike standard gambling websites, do not require registration or proof of age checks – are being played by children. They are also concerned that, because they have a similar appeal to ‘real’ gambling games, they could act as a precursor to gambling with money online, and that some free games offer inflated odds of winning, giving participants a false optimism about their likelihood of winning.

Children were asked about their experience of playing free or practice gambling games online, in order to assess how widely used these games are, and the extent to which those who play them are also involved in gambling with real money. While the findings suggest concerns about these games are well founded, regression analysis carried out on the data suggests that the

⁴⁴ See: “Internet Gambling among adolescents: A growing concern”, J. Derevensky and R. Gupta, April 2007, and “Internet Gambling: Issues, Concerns, Recommendations”, M. Griffiths, Dec 2003

strongest relationship is actually between online practice games and gambling with real money *offline* as opposed to gambling online.

Two thirds of children (67%) said that they had not played any free or practice gambling games on the internet in the past seven days. However a significant minority – almost three in ten (28%) – said they had, suggesting that these types of game hold a strong appeal for a significant minority of children.

Figure 7



As illustrated in Table 4 below, there is a relationship between gambling for money and playing free gambling games online, with gamblers more likely than average to have played free online games⁴⁵. However, rates of spending on online gambling games were relatively low (see section, Spending money online, above: **one percent** spent money on ‘real’ online gambling games in the seven days preceding their interview). Taken together, the findings suggest that, although these games may appeal to a minority of children –

⁴⁵ See also section below, Profiling young gamblers: regression analysis indicates that participation in free online gambling games was one of the strongest predictors of whether someone was a gambler, and a strong predictor of problem gambling.

and may be most appealing to those who also gamble 'offline' – the security settings in place are on the whole effective in that relatively small numbers have gambled money online.

This trend is in line with adult rates of gambling on the internet: the 2007 British Gambling Prevalence Survey found that around **one percent** of adults had gambled online in the seven days preceding their interview, and three percent in the past year⁴⁶. The relatively low numbers of children gambling online, therefore, may also reflect relatively small take-up of this type of gambling among the British public.

⁴⁶

<http://www.gamblingcommission.gov.uk/UploadDocs/publications/Document/Prevalence%20Survey%20final.pdf>, p.33, Table 7

Table 4: Types of children most likely to play free or practice gambling games online

Note: groups that were significantly more likely to have played online gambling games are listed below

Base: All respondents (8,958)

- Child was male (32% compared with 24% of girls).
- Child was from a black (30%) or white (29%) ethnic background, and less likely to be from an Asian background (17%).
- Child earned or received over £30 in the last week (44% vs. 28% on average) despite the fact that the games are free.
- Child had participated in some form of gambling in the past seven days (56%).
- Child had played scratchcards (67%) or slot machines (64%) in the past seven days, suggesting that even if free or practice games online are not encouraging children to move onto gambling with real money, there is certainly a link between the two activities.
- Child reported that parents gamble (32% compared with 18% of those whose parents do not gamble).
- Child perceives parents would think it okay for children to play the National Lottery (47% compared with 28% on average).

Awareness and appeal of gambling

This section uses a mix of quantitative and qualitative data to explore the level and nature of awareness of gambling among children, and why gambling or the National Lottery appeals to them. The survey questionnaire included space at the end for children to write in their thoughts about what gambling is, why it appeals to some people, and whether the National Lottery is a form of gambling⁴⁷. These responses were coded into categories, and verbatim responses were selected to highlight some of the most commonly held views. This chapter reports on these responses, as well as examining levels of awareness of gambling advertising, awareness of the legal age limit for playing the National Lottery and other gambling games, and children's perceptions of how their parents feel about children their age gambling. It also reports on why young gamblers themselves say they buy tickets, and why they first started to play the National Lottery.

What is gambling?

To gain an understand of children's general perceptions about gambling, they were asked to give their thoughts in response to the question, *What do you think about when you hear the word 'gambling'?*

The most common response was to think of specific types of gambling games – possibly because children had been answering questions mentioning these types of games throughout the survey – with poker, fruit machines, the Lottery and bingo mentioned most often.

It appears that 'gambling' tends to have negative connotations for children on the whole, with many references to 'losing' or 'wasting' money, and fewer that relate to the idea that gambling is about 'winning'.

⁴⁷ Over 6,500 children answered these questions at the end of questionnaire.

“A waste of money but sometimes enjoyable – poker, blackjack, roulette”

Pupil, Year 10

“I think about losing money”

Pupil, Year 8

Other reactions to the word ‘gambling’ included references to recent gambling adverts⁴⁸ or descriptions of the type of people that gamble; children mentioned glamorous wealthy people as well as depressed and unhappy people, reflecting the different images that the word ‘gambling’ can create in their minds.

Is the National Lottery gambling?

A follow-up open-ended question asked children whether or not they think the National Lottery is a type of gambling, and the responses indicate that, largely, they do. Responses commonly refer in some way to the element of ‘risk’ involved due to the fact that the Lottery involves paying money for something you are unlikely to win.

“Yes, [the National Lottery is a type of gambling] because you are spending money and trying to win more but you usually end up wasting it. If you win you are lucky”

Pupil, Year 8

“Yes it is [a type of gambling] – it is a way you can win money, but with very little chance of winning”

Pupil, Year 10

Some stated, however, that the National Lottery is not a ‘serious’ type of gambling because it is not addictive, or because the money goes to good causes. Those who disagreed came up with a range of reasons as to why they did not consider the National Lottery to be gambling, including:

⁴⁸ See section below, Awareness of gambling advertising, for more information.

- A lot of people play it/take part
- Their parents or family play it/have won money on it
- It's only £1 a week to play
- It's not about gambling, it's about luck
- It's not serious, just a bit of fun

It appears that since National Lottery tickets are cheap, and a lot of children see their parents buying them that they do not see it in the same way as other 'harder' forms of gambling, instead regarding it as something light-hearted and fun.

“I don't think it is really because it's just a bit of fun at the end of the week and you have a chance of winning life changing money.”

Pupil, Year 8

Awareness of gambling advertising

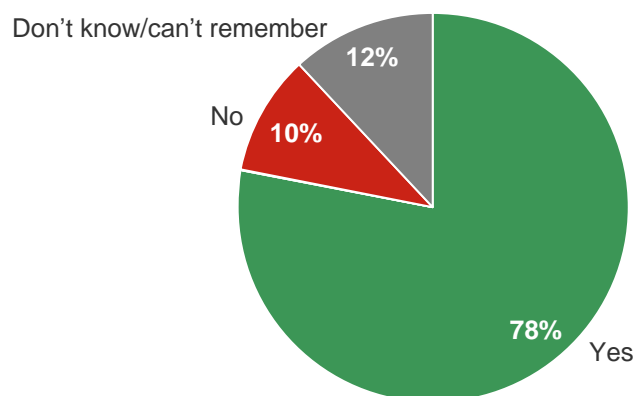
When introduced, the Gambling Act 2005 allowed some gambling sectors, such as betting, more scope to advertise than they had previously. Although the Broadcast and Non-broadcast Committees of Advertising Practice (BCAP and CAP) were quick to introduce new rules to ensure that all gambling advertising is socially responsible (with an emphasis on protecting young and vulnerable members of society), there are still concerns that children could potentially be influenced by the adverts they see on television and the internet.

More than three quarters (78%) of children had recently seen television advertisements or internet pop-ups relating to the National Lottery and other gambling like poker, bingo and sports betting, with a minority of 10% saying they had not. A similar proportion (12%) did not know or could not remember if they had seen one of these adverts or pop-ups.

Figure 8

Awareness of gambling advertising

Q We'd now like you to think about the National Lottery and other gambling like poker, bingo, and sports betting. Have you seen any adverts or pop-ups for them on TV or on the internet recently?



Base: All respondents (8,958) Fieldwork dates: November 2008-February 2009

Source: Ipsos MORI

Ipsos MORI



As mentioned above, advertising was mentioned spontaneously by children when they were asked to give their thoughts about the word 'gambling'..

Awareness of gambling advertising on television or on the internet was more widespread among older groups (82% of those in curriculum year 10 compared with 75% of those in curriculum year 8).

Some interesting patterns emerge in terms of those most likely to recall seeing gambling advertisements. Those who had gambled in the preceding seven days (84% recall) and those who had played free gambling games online (82%) were more likely than average (78%) to remember seeing these advertisements. The data do not indicate whether exposure to gambling advertising may encourage gambling, or whether children who already gamble are simply more receptive to this type of advertising. However, the results show that children who engage in other illegal behaviours were also more likely than average to recall seeing gambling advertisements (82% who have taken illegal drugs and 83% who had played truant remembered these advertisements). Taken together, the data may indicate that some children who are more drawn to risk-taking behaviours (gambling, illegal drugs, truancy) are also more likely to notice gambling advertising.

Awareness of legal age limits

Children were asked to name the legal lower age limit for buying National Lottery tickets, along with the age limits for a variety of other activities: buying cigarettes, buying alcohol, driving and placing a bet in a betting shop.

As indicated in Figure 9, children were less likely to know the correct age for playing the National Lottery than any other activity asked about.

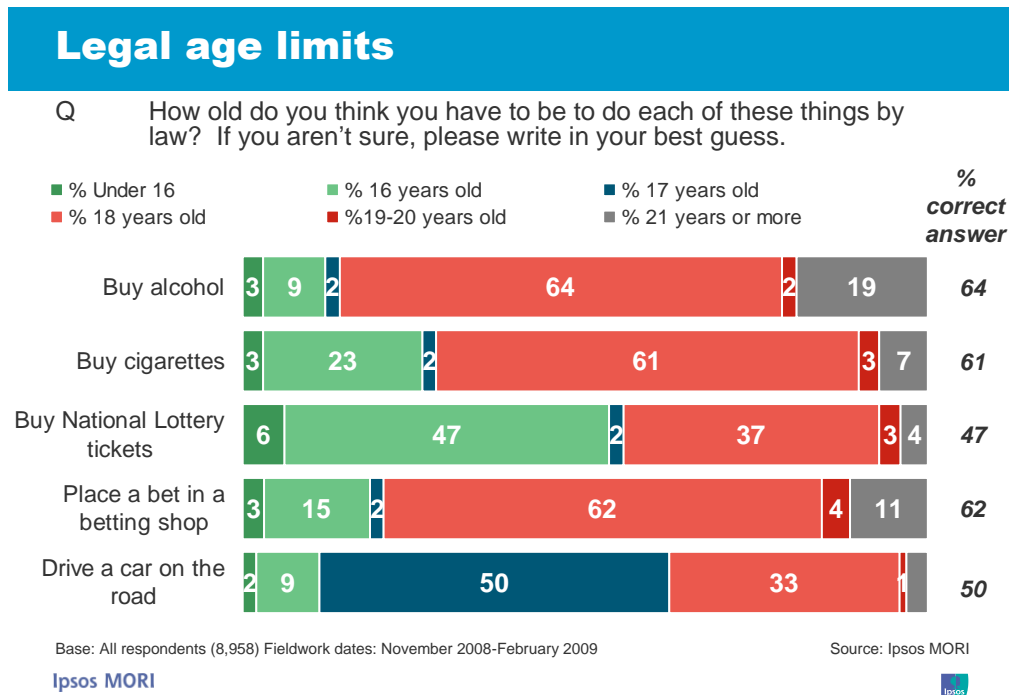
Just under half of children (47%) correctly stated that 16 is the legal age at which you can buy a National Lottery ticket, while almost two in five (37%) stated the age limit as 18. The large majority therefore knew that the purchase of National Lottery tickets was illegal for children their age. The age at which it is legal to place a bet in a betting shop is more commonly known: three in five (62%) named 18 as the minimum legal age for this activity.

Almost two thirds of children (64%) stated that it is legal to buy alcohol from the age of 18, and a similar proportion knew this to be the minimum age to buy cigarettes (61%)⁴⁹.

You have to be 17 to drive a car on the road in the UK, but only 50% of children knew this; a third (33%) thought the driving age limit was 18 years.

⁴⁹ It is worth bearing in mind that the legal age for purchasing cigarettes changed relatively recently (October 2007), which may be reflected in the relatively high proportion of children who incorrectly stated the legal age for buying cigarettes as 16 years old (26%).

Figure 9



Those approaching the legal age limit to play the National Lottery were more likely to state the correct age limit – just over half of those in curriculum year 10 (52%) knew the correct age compared with two in five (42%) in year 8.

Girls were slightly more likely than boys to know the minimum legal age to play the Lottery is 16 (48% compared with 46%) while those from a white ethnic background were more likely to know than those from black or Asian backgrounds (48% compared with 39% and 38% respectively).

Children who had gambled in the seven days preceding their interview⁵⁰ were twice as likely as average to say that it is legal to buy National Lottery tickets under the age of 16 (12% compared with six per cent on average) with those who had spent their money on National Lottery tickets or scratchcards even more likely to state this view (17%). It is possible that this group genuinely believe that it is legal to purchase tickets below the age of 16 and therefore do not know that they are doing anything wrong, but it may be that they deliberately stated a lower age limit in order to justify their behaviour, or from fear of being found out. The same finding is true among problem gamblers –

22% of this group stated that they believed the legal age limit for purchasing National Lottery tickets was under 16.

Looking at gamblers' knowledge of legal age limits across the board, however, there is no particularly strong evidence to suggest that their knowledge of age limits is poorer than average – nine per cent of those who gambled in the last week answered all five 'age limit' questions correctly, which was in line with the average across all children.

Perceptions of parents' views

For the first time this year, children were asked to describe the views of their parents on a variety of activities, stating whether their parents would condone, be neutral, or oppose children of their age smoking, drinking, playing the National Lottery, and playing fruit machines. They were also given the option of saying that their parents held different views.

This question was designed to test a hypothesis that parents are more likely to educate their children about activities such as smoking and drinking than about gambling. The results seem to bear this out, with children less likely to know their parents' views about gambling than other illegal behaviours.

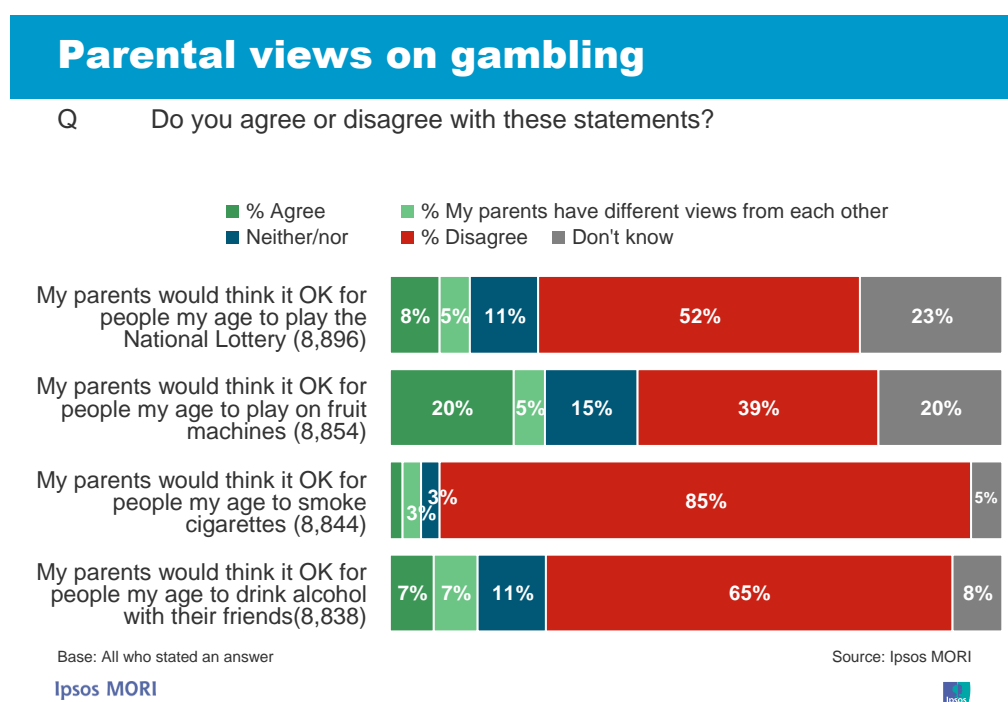
As illustrated in Figure 10, a majority of children felt their parents would oppose them becoming involved in each of the activities we asked about. However, there is a noticeable difference in perceived parental views on gambling versus views on smoking and drinking: a much larger proportion of children *did not know* what their parents would think about children playing on fruit machines or the National Lottery than their parents' views on children smoking and drinking. This suggests that gambling may be a lower priority concern than behaviours such as smoking and drinking when it comes to parents' agenda of issues to discuss with their children.

Cigarettes were seen as the most strongly opposed vice, with 85% of children saying that their parents would disapprove of children their age smoking cigarettes. Two thirds (65%) believed their parents would feel the same way

⁵⁰ 1,786 children indicated they had gambled in the past seven days.

about them drinking alcohol. The proportion who said their parents would disapprove of them playing the National Lottery (52%) and on fruit machines (39%) was lower, with high proportions of children saying they did not know how their parents would feel about these things (23% and 20% respectively). Fruit machines were perceived to be the least concerning activity for parents, with one in five children saying that their parents would condone people their age playing them (20%).

Figure 10



As would be expected, there was a difference across age groups when it came to perceived parental views on gambling, with those in curriculum year 8 more likely to say that their parents would oppose them playing the National Lottery than those in year 10 (63% compared with 41% respectively) which is likely to reflect the fact that children in curriculum year 10 are far closer in age to being able to play the Lottery legally.

Boys perceived their parents to be more lenient about gambling than girls – 10% thought their parents would be okay with children playing the National Lottery while only seven per cent of girls held the same view.

As noted above, Lotto players were more likely than average to say they thought the legal age limit for playing the Lotto was under 16; interestingly, gamblers were also more likely to say their parents would take a relaxed view about children gambling. A relatively high proportion of those who had gambled in the seven days preceding their interview said their parents would be happy for children to play the National Lottery (17%) but this figure rises to two in five (39%) among those who have played Lotto in the past seven days. It is possible that these children played the Lotto with their parents, which is why they take this view.

Problem gamblers were also more likely than average to say their parents would be okay with children playing the National Lottery (31%). There is a smaller, but still significant, difference among those whose parents gambled; 11% said their parents would be okay with children their age gambling compared with eight per cent on average.

Over three in five (63%) stated that their parents played some sort of gambling game. The majority said their parents play the National Lottery or scratchcards (59%) while fewer mention things such as placing a bet in a betting shop (11%) or playing bingo (eight per cent). One quarter of children said their parents do not play any of these games (24%) while one in ten did not know whether their parents gambled or not (11%). These patterns of participation are very broadly in line with adult participation rates, as measured by the British Gambling Prevalence Survey⁵¹.

⁵¹ The survey of adults ask about games played in the past year (whereas the current survey asked about games ever played by parents). However, the results are strikingly similar: in the adult survey 68% had gambled in the past year which is comparable to the 63% recorded in this survey. Results for specific games are also similar: in the adult survey 57% had played the National Lottery draw in the past year, 17% bet on horses, 7% played bingo.
<http://www.gamblingcommission.gov.uk/UploadDocs/publications/Document/Prevalence%20Survey%20final.pdf>, p. 26, Table 2.4

Figure 11

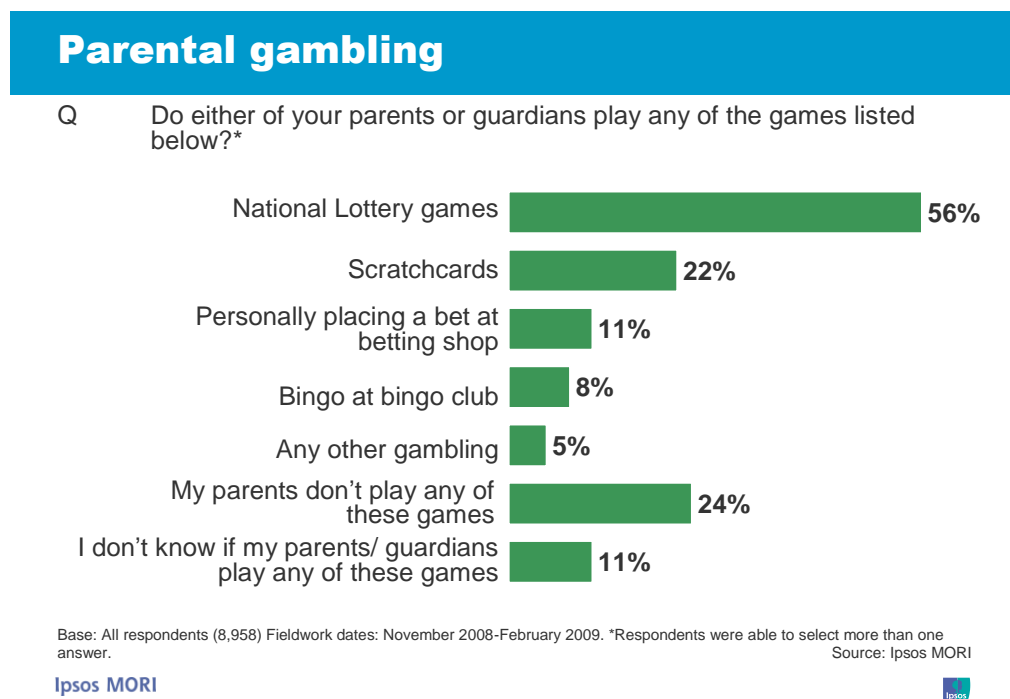


Table 5: Types of children whose parents gamble

Note: groups that were significantly more likely to have parents who gamble are listed below

Base: All respondents (8,958)

- Child from white ethnic background (65% compared with 47% of those from black ethnic backgrounds and 42% from Asian backgrounds).
- Child earned or received more than £30 in the last week (71% vs. 52% of those who did not receive any money).
- Child participated in some form of gambling themselves in the past seven days (74% compared with just over three in five on average (63%).
- Child classified as a problem gambler (80%), or played truant (72%) or took drugs (70%) in past seven days, emphasising the likelihood that parental actions impact on a child's behaviour.
- Child says their parents would be okay with children playing the Lottery; four in five (79%) have parents who gamble themselves.

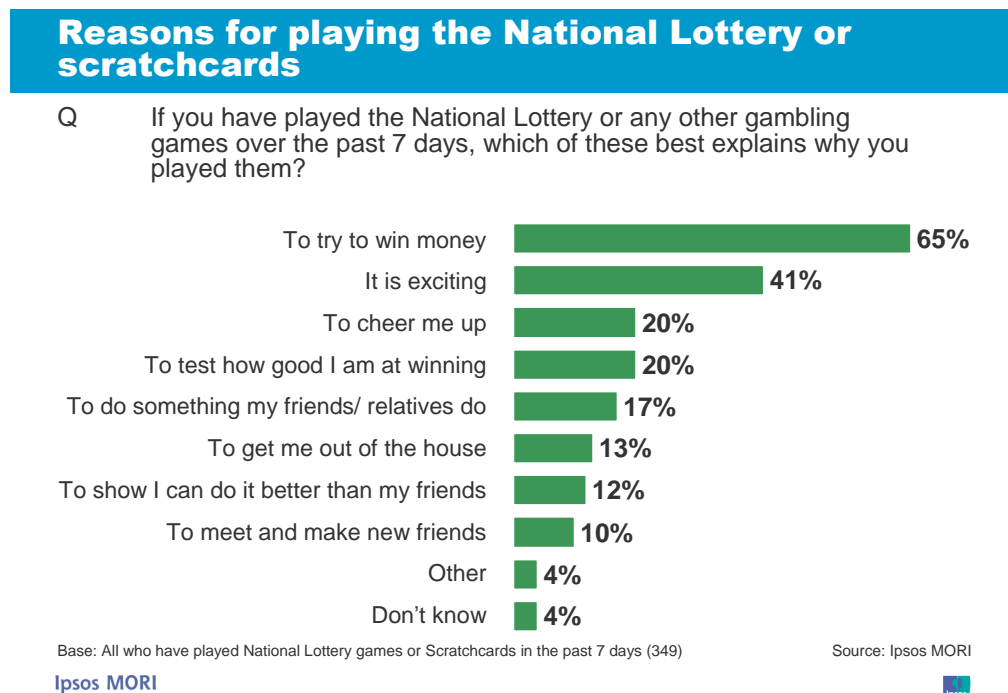
Why had children played the National Lottery or scratchcards in the past seven days?

Figure 12 shows, for those children who had played the National Lottery or scratchcards in the seven days preceding their interview, the reasons they gave for buying their tickets. The majority of players said that they bought tickets to try to win money (65%). Other reasons given were that they are exciting (41%), that they cheered them up (20%) and that they could test how good they are at winning (20%).

There is a certain element of competitiveness and peer group influence involved for children, with 17% claiming that they wanted to play National Lottery games or scratchcards because their friends or relatives were doing it, and 12% wanting to prove that they could do it better than their friends.

For others boredom seems to have been the biggest draw – 13% said that they gambled to get them out of the house, while 10% wanted to meet and make friends.

Figure 12⁵²



⁵² N.B. Question was asked to all who had played National Lottery or any other gambling games but responses have been filtered to include National Lottery or scratchcard players only.

Trying to win money was more attractive to older than younger groups; 72% of those who played the National Lottery or scratchcards in curriculum year 10 gave this as a reason why they gambled compared with 58% of gamblers in year 8. It is also something that appealed more to boys (69%) than girls (58%). The lure of winning money was a key reason why those who played Lotto had bought tickets in the last week; 77% of Lotto players mentioned this, compared with 65% on average.

Those who had played free or practice gambling games online were more likely than average to say that the excitement was the main reason why they played the National Lottery or gambling games in the last seven days (46% compared with 41% on average)

The reasons that this core group of gamblers gave for having played the National Lottery or scratchcards in the preceding seven days were closely reflected in the views of children in general when responding to the open-ended questions at the end of the survey; when asked why they think that someone might spend money on gambling, the desire to win money was the most common response.

“Because they try to get lots of money to buy nice things.”

Pupil, Year 8

The element of excitement also emerged as a key reason why children thought that others gamble, relating to the idea of gambling as a form of escapism. Many mentioned the thrill and ‘buzz’ of gambling in contrast to a mundane lifestyle, problems paying bills or the mortgage, and the idea that a big win might be the answer to those problems.

“The buzz, excitement, thrill of winning - an escape from day-to-day life”

Pupil, Year 10

“Because they think that it will solve their problems. They think that they’ll win and get lots of money and suddenly all their problems will be gone”

Pupil, Year 8

The other frequently mentioned reason why children thought that someone might gamble was addiction. This is something that was not mentioned by the small group of gamblers we interviewed as a reason why they had gambled in the last week, although this could be because it was not printed on the questionnaire for them to select from.

“Because it becomes addictive to some people and they just cannot stop gambling”

Pupil, Year 8

“Because once you start you can't stop. It's addictive, just like smoking”

Pupil, Year 8

Why did children buy National Lottery tickets or scratchcards for the first time?

Children who had gambled on the National Lottery or scratchcards were asked to indicate which of a list of reasons explained why they *first* bought, or tried to buy their tickets⁵³. The responses were similar to those given as general reasons why children might gamble. Twenty eight percent of gamblers said they did so because they wanted to win, or thought they might win some money, and linked to this, seven per cent said they thought it would be fun or exciting.

Eight per cent of young gamblers said they first bought National Lottery tickets or scratchcards because their family buy them or because they got them at the same time as their family. This links in with other evidence which

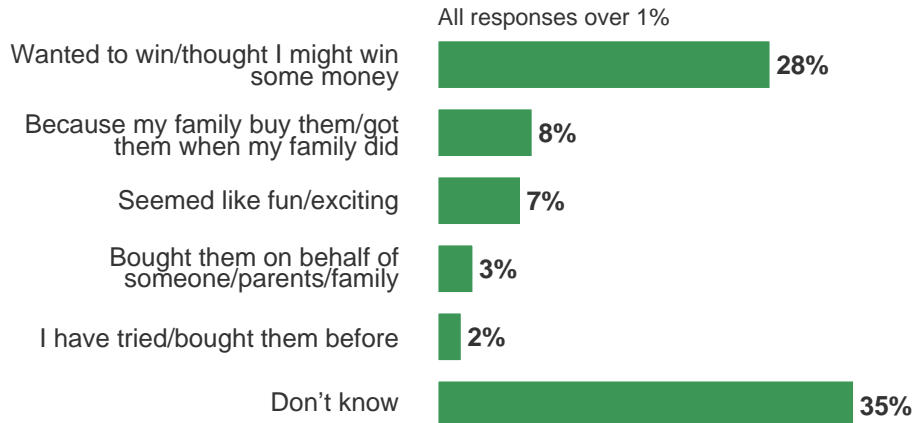
⁵³ There was also a space for children to write in other reasons if none of the options on the questionnaire applied to them.

suggests that parental gambling is a key factor in determining why some children become involved in gambling activities.

Figure 13

Reasons for first trying to buy National Lottery tickets or scratchcards

Q Why did you FIRST buy, or try to buy, National Lottery tickets (e.g. Lotto or EuroMillions) or scratchcards?



Base: All who tried to buy National Lottery tickets or scratchcards and stated an answer (835)
Fieldwork dates: November 2008-February 2009

Source: Ipsos MORI

Ipsos MORI



Problem gambling

This chapter examines problem gambling in children using a youth-adapted problem gambling screen, DSM-IV-MR-J (Fisher, 2000)⁵⁴. The DSM-IV-MR-J screen, an established standard used internationally by academics and researchers to assess whether a gambler is a problem gambler, consists of a number of components tapping into different behaviours indicative of problem gambling, such as preoccupation with gambling, or the need to gamble with increasing amounts of money to achieve the desired excitement (see Table 6). It has been applied in all tracking studies since 1999 to facilitate year on year comparisons.

Problem gambling screen definitions

Problem gambling behaviour was assessed using the DSM-IV-MR-J problem gambling screen in order to identify children who are 'problem', 'at risk' and 'social gamblers'. A person who confirmed that they had undertaken four or more of the behaviours asked about in the past year was considered a problem gambler, a score of two or three was used to identify an at risk gambler and a score of zero or one indicated a social gambler.

Table 6 below indicates how the questions asked in 2008-09 mapped onto these screen components.

⁵⁴ Fisher, S (2000) *Developing the DSM-IV-DSM-IV Criteria to Identify Adolescent Problem Gambling in Non-Clinical Populations*, Journal of Gambling Studies 16:2/3

Table 6		Problem and social gambler criteria from the DSM-IV-MR-J screen	
2008-09 Question no.	DSM-IV criteria	'During the past 12 months' if any of the following answer criteria are ticked, that qualifies as 1 point	
24	Preoccupation	Have you found yourself thinking about gambling or planning to gamble	'Often'
27	Tolerance	Have you needed to gamble with more and more money to get the amount of excitement you want	'Sometimes' or 'often'
26	Withdrawal	Have you felt bad or fed up when trying to cut down on gambling	'Sometimes' or 'often'
28	Loss of control	Have you ever spent much more than you planned to on gambling	'Sometimes' or 'often'
25	Escape	Have you gambled to escape from problems or when you were feeling bad	'Sometimes' or 'often'
31	Chasing	After losing money on gambling have you returned another day, try to win back the money you lost	'More than half the time' or 'every time'
30b	Lying	Has your gambling ever led to the following: telling lies to family/friends or others	'Once or twice' 'sometimes' or 'often'
29	Illegal acts	Have you ever taken money from any of the following without permission to spend on gambling: Dinner money or fare money Money from family Money from things you've sold Money from outside the family Somewhere else	If any one or more of these options are ticked, then qualifies for one point in total
30a 30d	Risked relationships	Has your gambling ever led to the following: 30a) Arguments with family/friends or others 30d) Missing school	If any of the following are ticked, then qualifies for one point in total: 'once or twice', 'sometimes' or 'often'

Source: National Lottery Commission

Table 7 indicates the percentage of children who gave the required answers to each question when the scoring system was applied to the data.

Table 7		Problem and social gambler criteria from the DSM-IV-J screen	
2008-09 Question no.	DSM-IV criteria	'During the past 12 months' if any of the following answer criteria are ticked, that qualifies as 1 point	
24	Preoccupation	Have you found yourself thinking about gambling or planning to gamble	2.1%
27	Tolerance	Have you needed to gamble with more and more money to get the amount of excitement you want	2.0%
26	Withdrawal	Have you felt bad or fed up when trying to cut down on gambling	1.0%
28	Loss of control	Have you ever spent much more than you planned to on gambling	0.9%
25	Escape	Have you gambled to escape from problems or when you were feeling bad	2.0%
31	Chasing	After losing money on gambling have you returned another day, try to win back the money you lost	1.5%
30b	Lying	Has your gambling ever led to the following: telling lies to family/friends or others	2.1%
29	Illegal acts	Have you ever taken money from any of the following without permission to spend on gambling: Dinner money or fare money Money from family Money from things you've sold Money from outside the family Somewhere else	3.3%
30a 30d	Risked relationships	Has your gambling ever led to the following: 30a) Arguments with family/friends or others 30d) Missing school	2.4%

Source: Ipsos MORI

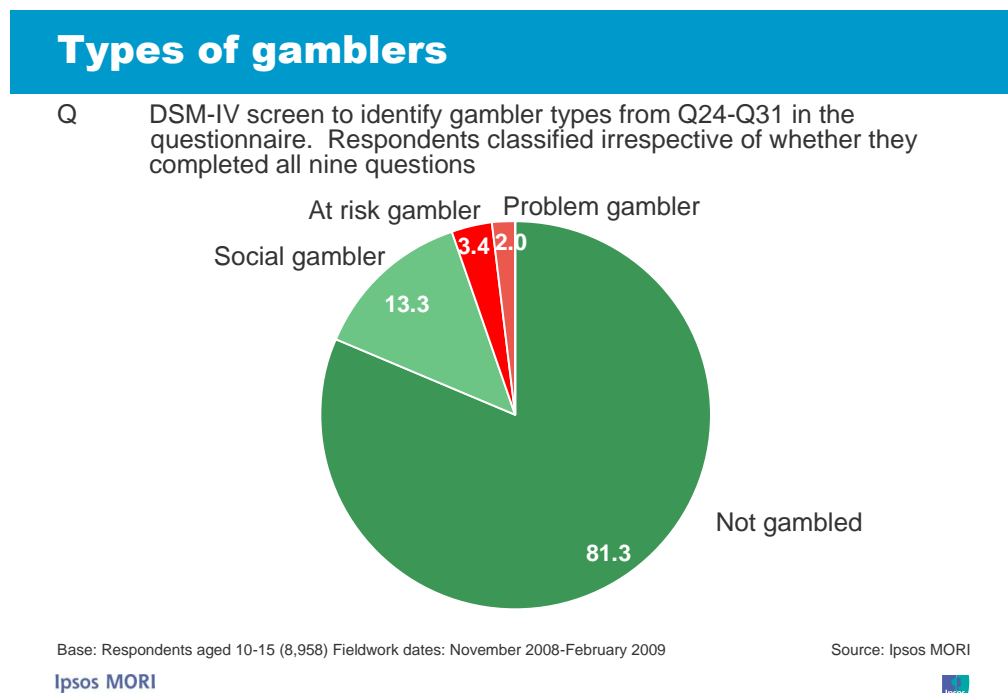
In previous waves of this survey children were only classified on the DSM-IV-MR-J screen if they answered all nine component questions. Taking this approach on the current survey, 16.2% of respondents were classified as a social, at risk or problem gambler. The remaining 83.8% had either not gambled in the past 12 months (81.3%) or had not completed the entire screen (2.5%). Using this approach, 1.6% are classified as problem gamblers, which is a significant fall from the 3.5% identified as problem gamblers in 2005-06.

The way in which questions used for the problem gambler screen were asked was modified slightly on the current survey. Previously, the DSM-IV-MR-J problem gambling screen questions related only to fruit machine and scratchcard play, while on the current survey it covered all forms of gambling a child had engaged in within the past 12 months. If this change had any impact on results, however, it is likely to have *increased* the proportion of problem gamblers identified in the population. Instead, it seems likely that falling rates of problem gambling reflect falling levels of gambling among children over time, particularly on slot machines, which are potentially more addictive⁵⁵.

However, by making completion of all nine screener questions a prerequisite of classifying respondents will inevitably underestimate the true proportion of gamblers in the population, as non-response is treated as a negative outcome on the screen. Removing the prerequisite to complete all nine screener questions on the current survey, 2% were identified as problem gamblers, 3.4% as at risk and 13.3% as social gamblers. Figure 14 illustrates, for our entire sample of children, the proportion that was classified into each group.

⁵⁵ For example, the British Gambling Prevalence Survey shows that rates of problem gambling in adults are higher for machine gamers. See Table 5.4a, p. 95 <http://www.gamblingcommission.gov.uk/UploadDocs/publications/Document/Prevalence%20Survey%20final.pdf>

Figure 14



Valentine (2008, pp. 21-22⁵⁶), in a literature review of young people's gambling behaviour for the Gambling Commission, notes evidence of relatively high rates of problem gambling among high school students in a number of jurisdictions, for example 3.5-4.0% in Australia according to DSM-IV-J. There is also consistent evidence that recorded rates of problem gambling are higher (by three times according to Delfabbro et al., 2005⁵⁷) in youth populations than in adult populations and higher for young adolescents (in the age group covered by the present survey) than for older teenagers.

By international standards, the incidence of problem gambling among British children (2%) may then be judged relatively low. The incidence compared with that for adult groups (0.6%, evaluated using DSM-IV, according to the British Gambling Prevalence Survey, 2007) appears to be consistent with experience elsewhere.

⁵⁶ Valentine, G. (2008), *Literature review of children and young people's gambling*, Gambling Commission, Birmingham.

⁵⁷ Delfabbro, P., Lahn, J. & Grabosky, P. (2005), *Adolescent gambling in the ACT*, Australian National University Centre for Gambling Research, Canberra.

Looking at the levels of problem gambling *among gamblers* – or in other words, the propensity to develop addictive gambling behaviours among those who do gamble, rather than all children – levels are unchanged since 2006. In 2006 9% of those eligible for classification were problem gamblers which is statistically comparable with 2008-09, where 10% of those eligible for classification were identified as problem gamblers.

Table 8 gives the percentage of problem gamblers who meet the DSM-IV criteria at each question.

Table 8		Problem, at risk and social gambler criteria from the DSM-IV-J screen	
2008-09 Question no.	DSM-IV criteria	If any of the following answer criteria are ticked in relation to the last 12 months, that qualifies as 1 point	
24	Preoccupation	Have you found yourself thinking about gambling or planning to gamble	55%
27	Tolerance	Have you needed to gamble with more and more money to get the amount of excitement you want	66%
26	Withdrawal	Have you felt bad or fed up when trying to cut down on gambling	35%
28	Loss of control	Have you ever spent much more than you planned to on gambling	39%
25	Escape	Have you gambled to escape from problems or when you were feeling bad	57%
31	Chasing	After losing money on gambling have you returned another day, try to win back the money you lost	86%
30b	Lying	Has your gambling ever led to the following: telling lies to family/friends or others	59%
29	Illegal acts	Have you ever taken money from any of the following without permission to spend on gambling: Dinner money or fare money Money from family Money from things you've sold Money from outside the family Somewhere else	71%
30a 30d	Risked relationships	Has your gambling ever led to the following: 30a) Arguments with family/friends or others 30d) Missing school	61%

Source: Ipsos MORI

The actual scores to the DSM-IV problem gambling screen are presented in Table 9 below.

Table 9	Gambling scores using DSM-IV problem gambling screen		
Score ⁵⁸	Number of respondents	Cumulative number of respondents	Cumulative % of respondents
0	843	843	9.4%
1	348	1191	13.3%
2	183	1374	15.3%
3	123	1497	16.7%
4	69	1566	17.5%
5	40	1606	17.9%
6	27	1633	18.2%
7	16	1649	18.4%
8	19	1668	18.6%
9	5	1673	18.7%

Profiling the social, at risk and problem gambler

Table 10 shows the prevalence of problem, at risk and social gambling among different sub groups within the sample.

⁵⁸ Scores based on all answering, irrespective of whether all nine elements of screen completed.

Table 10 *Prevalence of social, at risk or problem gambling amongst key sub-groups*

<i>Base: All respondents</i>		<i>Type of gambler⁵⁹</i>		
	<i>2008-09</i>	<i>Social</i>	<i>At risk</i>	<i>Problem</i>
Total	(8,958)	13.3%	3.4%	2%
Gender				
Boys	(4,466)	18.2%	5%	2.9%
Girls	(4,447)	8.1%	1.6%	1%
Year Group				
Year 8	(4,695)	12%	3%	1.9%
Year 10	(4,263)	14.8%	3.8%	2%
Ethnicity				
White	(7,680)	13.7%	3.4%	1.8%
Asian	(593)	7.5%	2.4%	3.1%
Black	(268)	11.8%	5.3%	2.4%
Money received in past seven days				
Nothing	(961)	7.6%	1.9%	0.4%
Less than £10	(3,083)	10.7%	2.4%	1.2%
£10-£30	(3,559)	15.1%	3.5%	2%
Over £30	(1,026)	17.6%	6.9%	5.7%
Parents gamble				
Yes	(5,586)	15.3%	3.9%	2.5%
No	(2,153)	8.9%	1.7%	0.3%
Behaviour				
Has played truant	(496)	17.3%	9.4%	8.8%
Has taken drugs	(2,917)	17.6%	6.4%	3.6%
Newspaper at				
Broadsheet	(2,056)	13.5%	3.7%	1.7%
Tabloid	(5,548)	14.4%	3.7%	2.2%

Source: Ipsos MORI

As in 2006, there was a clear variation by gender, with boys significantly more likely than girls to be classified as problem gamblers (2.9% compared with 1% of girls). Boys were also more likely than girls to be classified as social or at

risk gamblers (see Table 10): the fact that boys were more likely than girls to be classified into all three groups is a function of the fact that boys were more likely to have gambled (for example, rates of seven-day gambling, as measured by this survey, were twice as high among boys as girls).

As in 2006 there were differences by ethnic group: white children were more likely than average to be classified as social gamblers, while Asian children were relatively likely to be problem gamblers. When expressed as a percentage of the total sample of children, Asian children were more likely to be problem gamblers than average (3.1% compared with 2% average), despite lower levels of gambling among Asian children generally (14% of Asian children had gambled in the preceding seven days compared with 21% of other children).

Parental gambling has emerged as being related to many aspects of child gambling in the current survey. Those whose parents do not gamble were more likely than average to be classified as social gamblers, while those whose parents were gamblers were more likely to be problem gamblers.

A more detailed analysis of the characteristics associated with gambling, and problem gambling, in children can be found in the Characteristics of young gamblers chapter.

⁵⁹ Respondents classified irrespective of whether they completed all nine elements of screen.

Deterrents to purchasing National Lottery tickets or scratchcards

The National Lottery Commission is committed to preventing children from buying National Lottery products, and has measures in place to ensure that youth gambling on National Lottery products is kept to a minimum.⁶⁰ Strategies are in place to ensure that the design and promotion of National Lottery games is not appealing to children and therefore does not encourage play by under 16s. In addition, they adhere to strict advertising codes, enforce controls over interactive games, and have introduced an education and testing programme to make sure that retailers are not selling products to children under 16 years old. This chapter looks at how and where children buy tickets, whether they had been refused purchases, and their suggestions for what would deter them from buying tickets again in the future.

Trying to buy National Lottery tickets and scratchcards

Respondents were asked, *During the past 7 days, have you tried to buy any National Lottery draw tickets (e.g. Lotto and EuroMillions) with your OWN money, whether you actually managed to buy a ticket or not?* The question was repeated for attempted scratchcard purchases. Both questions were also asked in 2005-06⁶¹.

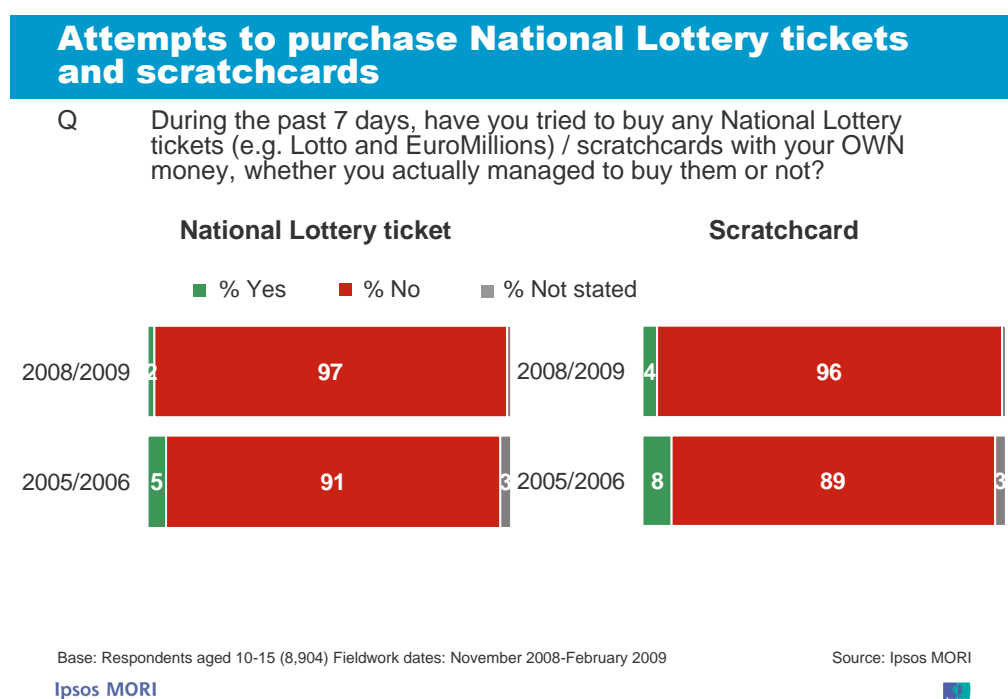
Reflecting the drop in the proportion of children actually spending money on the National Lottery since 2005-06, the proportion of children *trying* to buy tickets and scratchcards has also fallen. In total, just two per cent of children said that they had tried to buy National Lottery tickets with their own money in the seven days preceding their interview, whether they managed to buy them

⁶⁰ In 2008 Camelot made over 9,000 checks on retailers, and 93% refused to sell tickets to customers who looked underage. See <http://www.nfronline.com/cgi-bin/item.cgi?id=535>

⁶¹ N.B. Wording used in 2005-06 was slightly different. 2005-06 wording for National Lottery tickets: *During the past 7 days, have you gone into a supermarket or another shop and tried to buy any National Lottery draw tickets, whether you actually managed to buy a ticket or not?* For scratchcards the 2005-06 question wording was: *During the past 7 days, have you gone into a supermarket or another shop and tried to buy a Scratchcard, whether you actually managed to buy a ticket or not?*

or not, representing a drop of three per cent from 2005-06.⁶² The proportion saying that they had not tried to buy tickets has gone up from 91% to 97% over the same period. Similarly, the proportion of children who said they had tried to buy scratchcards with their own money in the seven days prior to their interview is down by half since 2006 from eight per cent to four per cent currently.⁶³ This is mirrored by an increase in the proportion who said that they have not tried to buy scratchcards, now at 96% up from 89% three years ago.

Figure 15



Similar demographic trends emerge in terms of those children trying to buy both National Lottery tickets and scratchcards. Older age groups, boys, those with higher incomes, and those whose parents gamble or who perceive their parents would condone children gambling were all more likely than average to have tried to buy tickets (see Table 11 below). There are few differences between those trying to buy the different games – suggesting that, on the

⁶² N.B. Wording used in 2005-06 was slightly different. 2005-06 wording: *During the past 7 days, have you gone into a supermarket or another shop and tried to buy any National Lottery draw tickets, whether you actually managed to buy a ticket or not?*

⁶³ N.B. Wording used in 2005-06 was slightly different. 2005-06 wording: *During the past 7 days, have you gone into a supermarket or another shop and tried to buy Scratchcard, whether you actually managed to buy one or not?*

whole, they appeal to the same types of children – although Asian children were more likely than average to try to buy National Lottery tickets, but no more likely than average to try to buy scratchcards.

Table 11: Type of Child trying to buy National Lottery tickets or scratchcards

Note: groups that were significantly more likely to have done each activity are listed below

Base: All respondents (8,958)

Children most likely to have tried to buy National Lottery tickets

- Child was a boy (four per cent vs. one per cent of girls).
- Child aged 15 years old (four per cent vs. two per cent of 12 to 14 year olds).
- Young from an Asian background (four per cent vs. two per cent of those from a white or black background).
- Child had money available to spend on tickets (six per cent of those who earned or received £30 or more in the last week compared with two per cent of those who received less, or nothing).
- Child had gambled in the past seven days (nine per cent).
- Child classified as a problem gambler (24%), an at risk gambler (10%) or has played truant (eight per cent).
- Child perceived parents would think it okay for children their age to play the National Lottery (11%, compared with one per cent of those who say parents would disapprove).

Children most likely to have tried to buy scratchcards

- Child was a boy (five per cent vs. two per cent of girls)
- Child aged 15 years old (six per cent compared with three per cent of 12 to 14 year olds)
- Child received or earned over £30 in the last week (nine per cent vs. two per cent of those who received nothing).
- Child had participated in some form of gambling in the past seven days (15% vs. four per cent on average).
- Child classified as a problem (23%) or at risk gambler (17%).
- Child perceived parents would think it okay for children to play the National Lottery (11% compared with two per cent of those whose parents would disapprove)

Refusals at the point of purchase

As noted above, two percent of children had tried to buy National Lottery tickets in the seven days preceding their interview, and four percent had tried to buy scratchcards. The majority of those who attempted to buy National Lottery tickets or scratchcards in the seven days preceding their interview claimed they were successful on their first attempt; 65% of those who tried to buy managed to purchase the item they wanted, while only 35% said that someone refused to sell to them.

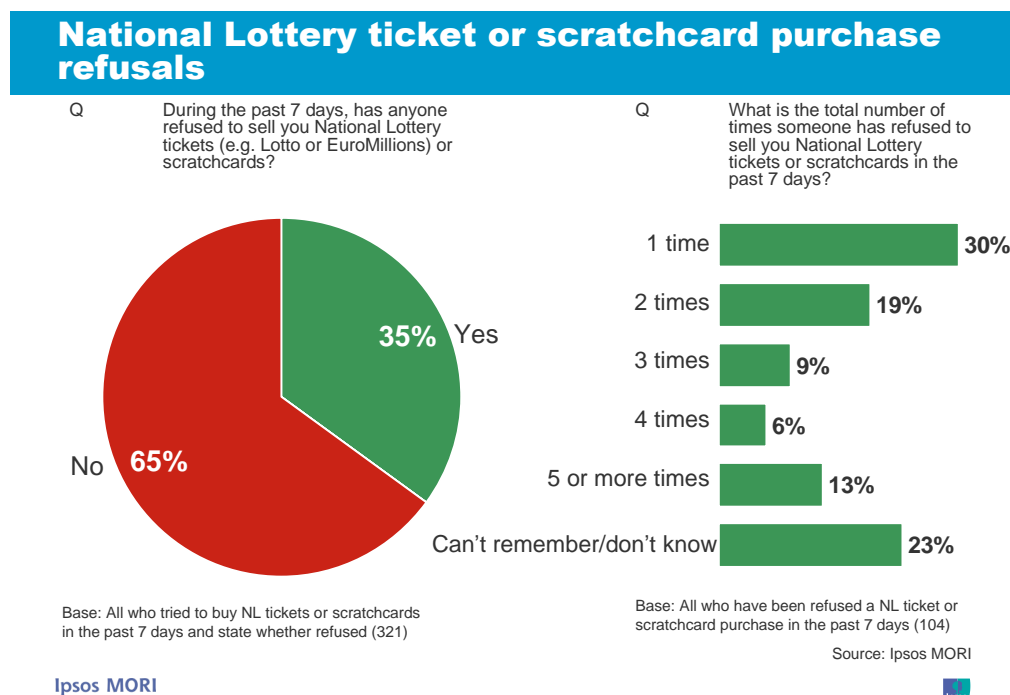
The rate of refusals was higher among younger than older groups, suggesting that retailers are, at least to some extent, refusing to sell National Lottery tickets or scratchcards to those who look underage: 45% of those in curriculum year 8 had been refused compared with 27% of those in year 10.

The refusal rate was lower among those who had successfully spent their money on National Lottery games or scratchcards in the preceding seven days – 69% said that they had not been refused, compared with 65% on

average, suggesting that some children perhaps have a regular retailer who will sell to them, or look older than their years.

Among those who were refused, 30% said that they were only refused once; we cannot assume from this that the action of the shop assistant in these cases was a sufficient deterrent, however, as it might be that they then made a second attempt which proved successful. We do know however, that the average number of times a young gambler is refused is 2.3, suggesting that there is a certain amount of persistence among this group – it seems that most will try to buy the tickets or scratchcards elsewhere if they are refused in the first place they try. One in five (19%) said they were refused twice in the preceding seven days, while 13% were refused more than five times, proof that some young gamblers will make multiple attempts to purchase the items they want.

Figure 16



Other possible deterrents

The majority of children who had bought or tried to buy National Lottery tickets or scratchcards in the preceding seven days admitted that some things would deter them from trying to make a purchase again in the future (86%).

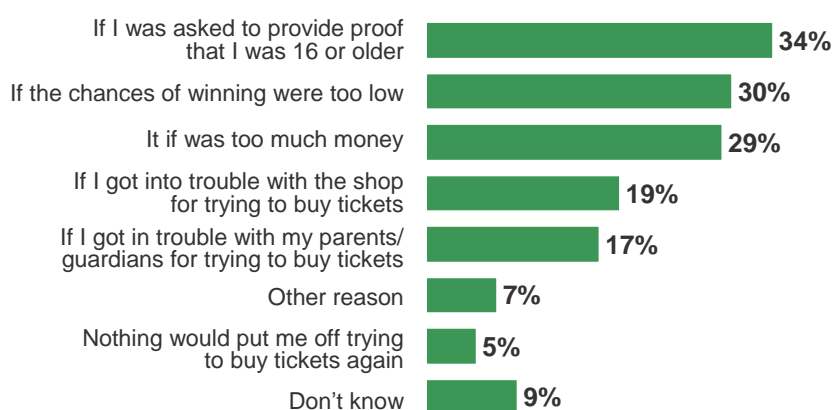
The best deterrent of all would be for retailers to ask for proof of age – a third (34%) of young gamblers said that if they were asked to prove they were over 16, they would be put off trying to buy tickets again. A similar proportion (30%) would be put off if the chances of winning were too low, suggesting that a significant minority of young gamblers currently perceive their chances of winning to be reasonable or high. Another money-related deterrent is the cost of the tickets or scratchcards themselves – 29% of young gamblers would be put off if they had to spend too much money in the first place.

Fear of getting in trouble with the retailer (19%) or their parents (17%) were deterrents for fewer children, while a headstrong five per cent of gamblers said that nothing would put them off trying to buy tickets or scratchcards again.

Figure 17

Deterrents to purchasing National Lottery tickets or scratchcards

Q Which of these, if any, would put you off trying to buy National Lottery tickets (e.g. Lotto or EuroMillions) or scratchcards again?



Base: All who gave a reason or would not be put off buying National Lottery tickets again (1057)

Source: Ipsos MORI

Ipsos MORI



Girls were more likely than boys to be deterred by the shopkeeper asking for proof of their age; two in five (39%) would be put off by this compared with a third of boys (32%).

Girls were also more likely than average to say they would be deterred if they were to get in trouble with the shop, as would younger children in curriculum year 8 (24% and 23% respectively compared with 19% on average).

Getting in trouble with parents is something that would particularly deter those who claim that their parents would disapprove of children their age gambling (24% compared with 17% on average) but those who claim that their parents gamble themselves were also more concerned than children on average (19%) about breaching their parents' rules.

Those who had gambled in the seven days preceding their interview were more likely than average to be put off buying National Lottery tickets or scratchcards if they cost too much money (32% compared with 29% on average). Children who had spent money on slot machines in the past seven days were more concerned about their chances of winning – 36% say they would not buy National Lottery tickets or scratchcards if their chances of winning were too low, compared with 30% on average.

How effective are current deterrents?

Since the last large-scale survey of children's gambling habits, there has been a significant drop in the rate of children spending their money on National Lottery games. The current survey results also show a fall in the proportion of children *attempting* to buy tickets. The factors behind the fall in attempts to play, and the implications for assessing the effectiveness of current deterrents, are unclear in that children may be less likely to try to purchase tickets due to stricter controls and age checks within shops or they may simply be less interested in playing the National Lottery than when the 2005/06 fieldwork was carried out.

Nevertheless, the results indicate that, for a core group of children, current deterrents are not preventing them from playing these gambling games, as

they are claiming to successfully purchase National Lottery tickets and scratchcards.

Figures 18 and 19 indicate that large numbers of those who said they had attempted to buy tickets in the preceding seven days were successful at some stage: 213 of 326 children who tried to buy scratchcards in the past week say they also spent their money on them, for example. These figures also indicate that relatively high numbers of children who spent money on tickets claim never to have been refused when attempting to purchase tickets: for instance, of 180 children who spent money on scratchcards in the preceding seven days and stated whether or not they had been refused purchases at any stage, 126 say they had not been refused.

Figure 18

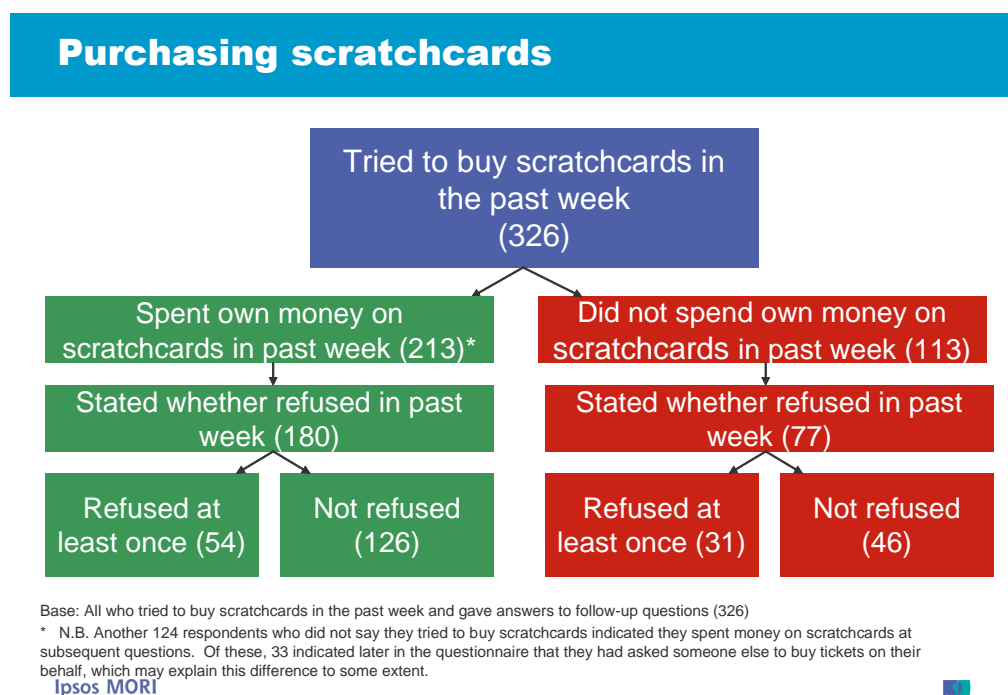
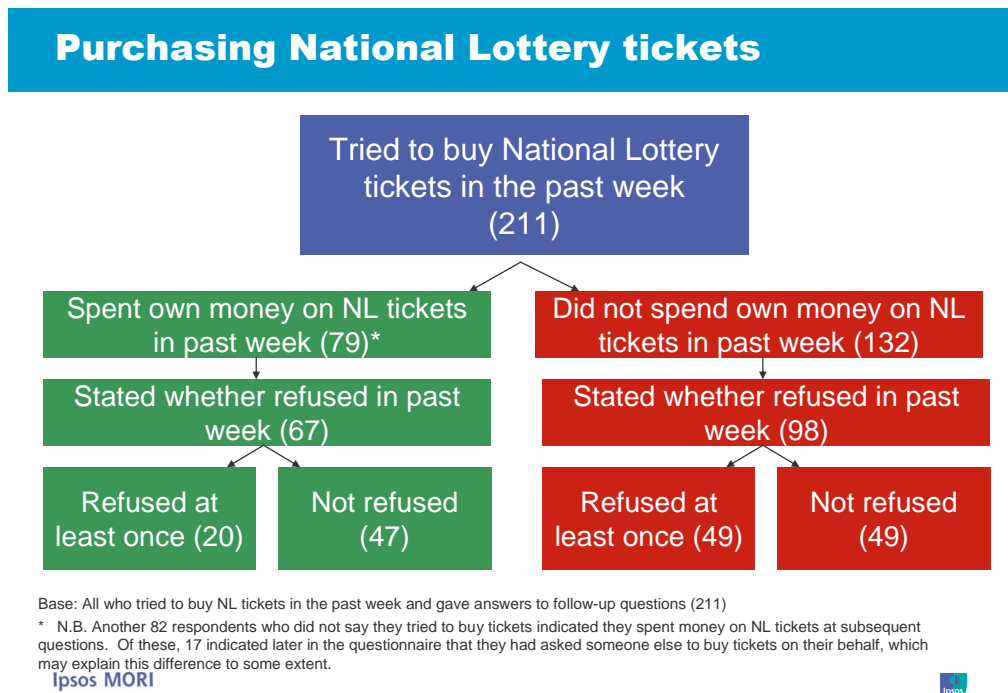


Figure 19



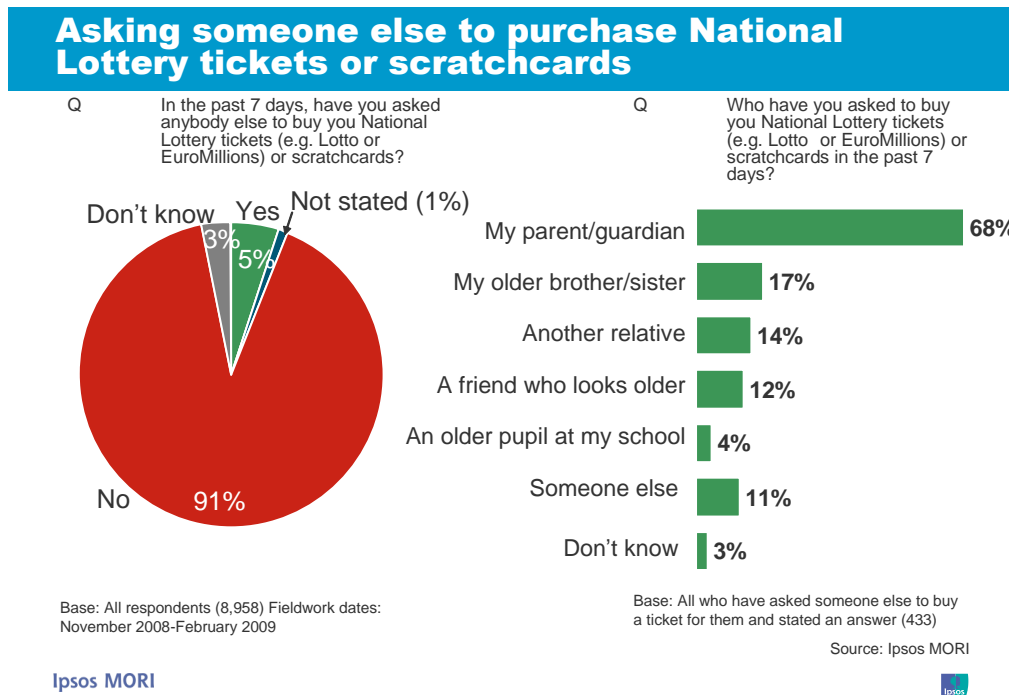
Among those who were refused, an initial refusal does not seem to deter them from trying again – judging by the mean number of refusals (2.3) it appears that they will make multiple attempts to purchase the items they want.

This does seem to conflict slightly with the evidence that a refusal from a shopkeeper is the number one deterrent from trying to purchase National Lottery tickets and scratchcards in the future, but it may be that the more seasoned gamblers know that persistence pays off, and that numerous attempts will eventually result in a successful purchase. These findings suggest that continued checks to ensure retailers are being vigilant in checking the age of customers who are potentially under 16 will be valuable in containing the levels of child participation.

A small minority of children admit to asking someone else to buy them National Lottery tickets or scratchcards in the past seven days (five per cent). Of these, most said that they asked a parent or guardian (68%), again linking in with evidence that parental participation in gambling is one of the most common ways in which children get involved themselves.

Just under one in five asked an older sibling to buy on their behalf (17%), while fewer have asked a friend who looked older (12%) or an older pupil at their school (four per cent). Asking others to buy a ticket feeds into this idea of persistence, although it is those who ask an older-looking friend or pupil at their school to buy for them who are more likely to be the 'problem' gamblers; asking these people implies that they do not want their parents or family to know.

Figure 20



Asking someone else to buy National Lottery tickets or scratchcards was far more common among those who had gambled in the previous seven days than average. For example, over two in five (42%) of those who had played Lotto in the last week said that they had asked someone to buy them a ticket, compared with five per cent on average. Similarly high proportions of scratchcard players (40%) and problem gamblers (29%) had sought out help in purchasing these items, suggesting that a sizeable proportion of past-week gamblers were not actually buying their tickets themselves.

Those who had gambled in the seven days preceding their interview were more likely than average to have asked a friend who looks older (16% compared with 12% respectively) or an older pupil at their school (six per cent compared with four per cent) to buy them a National Lottery ticket or scratchcard, which goes some way to confirm the assumption that those who ask people removed from their family are most at risk of developing a gambling problem.

Characteristics of young gamblers

This chapter summarises the findings of statistical regression models that were developed to investigate the independent effects of demographic characteristics on children's likelihood of gambling. The results of this work identify a number of characteristics that are significantly associated with higher rates of gambling and child problem gambling. A full analysis of the findings from the statistical models can be found in Appendix 5.

Statistical modelling: young gamblers

The need for statistical modelling

The focus of interest in gambling prevalence surveys is invariably on the answers they provide to two questions: what proportion of the subject population participates in gambling and what proportion exhibits symptoms of problem gambling?; a natural follow up to these investigations is understanding exactly *who* the gamblers and problem gamblers are.

Regression analysis allows us to identify which of a given set of factors are associated with an increased likelihood of being a gambler, and a problem gambler, when other, potentially confounding, characteristics are held constant.

For example, one might find that children from single parent families are both more likely to gamble and more likely to be problem gamblers than children from the rest of the population. Should we then conclude that a single parent home is a risk factor in child play and problem gambling? Not necessarily: children with single parents tend to be disproportionately concentrated in households with low incomes and in schools with high indices of deprivation. Regression analysis helps to isolate whether it is family status, income, or deprivation that is associated with an increased likelihood of participation (although it may also show that none of these factors has a significant independent effect once other variables are controlled for).

The regression analysis reported here identifies characteristics which are associated with an increased likelihood of being a young gambler, and a

problem gambler. This association, however, does not necessarily imply a causal relationship between the variables.

The process of statistical modelling

First, we report on a model designed to predict the probability that a child with given characteristics will have gambled in the preceding seven days. Second, we repeat the exercise but with the focus on whether a child will have played slot machines in the preceding seven days. Third, we consider the determinants of playing National Lottery games. Slot machines and National Lottery games are the most popular modes for children in the survey. Indeed, they are the only modes of commercial gambling that attract a seven-day participation rate of more than two percent, and are therefore the modes considered in this analysis.

For children who gamble on anything or play slot machines or buy National Lottery products, we also consider the predictors of their risks of exhibiting signs of problem gambling. Note that we therefore choose to model in turn (i.e. separately) the probability that a child gambles and then the probability that he or she experiences problem gambling given that he or she gambles. This enables richer conclusions to be drawn compared with a more conventional approach that would model the risk of problem gambling with all respondents (gamblers or not) included in the sample. The reason that conclusions are richer and provide sharper policy guidance is that some factors prove to have different (or even opposite) effects in terms of impacts on whether a child gambles and whether a child gambler is also a problem gambler. For example, children attending schools with more deprived student populations were no more likely than those attending schools with relatively affluent student bodies to gamble. However, where they did gamble, these children were more likely to display traits associated with problem gambling.

Dependent and independent variables

Multiple regression models provide a formal and efficient framework for using a data set to examine the relationship between a dependent variable, such as gambling behaviour, and the factors believed to be correlated with it (predictors).

Whether or not a child gambled in the preceding seven days is a binary variable, i.e. it can take only two values: either the child had gambled or the child had not gambled. To enable quantitative analysis, these two possibilities are assigned the numerical values one and zero respectively. An appropriate regression model should then have the property that it will predict (for given child characteristics) a number between one and zero: this number can then be interpreted as the forecast probability of whether such a child has gambled.

Amongst children who have gambled in the preceding seven days, we exploit their answers to the DSM-IV-MR-J screen which was used to identify problem gamblers in the current survey to assess the probability that they exhibit traits associated with problem gambling. Children are scored according to the number of positive answers given across the nine elements of the screen. Conventionally, those scoring four or more on the DSM-IV-MR-J screen are classified as problem gamblers (see section, Problem gambling, above). However, for the regression analysis, rather than treat subjects as either problem gamblers or not, on the basis of a certain threshold score on the DSM-IV-MR-J screen, we instead model the number of points scored on the DSM-IV-MR-J questions. The technique adopted is ordered logistic regression (often termed ordered logit). In our data, the range in the number of positive responses among children who had gambled in the previous seven days was from zero (sixty percent of the sample) to eight (less than one half of one percent of the sample). We treat each number in this range as a separate category. For a child with given characteristics, ordered logit predicts the probabilities for the child falling into each of the nine possible DSM-IV-MR-J scores. A positive coefficient estimate associated with a predictor variable suggests that the factor in question shifts the child's probabilities in a direction such that high scores become more likely and low scores become less likely.

Box 1: Independent variables used in regression analysis

The regression was used to identify which factors had a significant impact on respondents' likelihood of being a gambler or a problem gambler. The following variables relating to respondents' characteristics were used in the model. Many variables are measured by which of a number of categories apply to the child. These categories are outlined below; in these cases, each variable is interpreted in relation to a reference category (shown here in bold font) in the analysis.

Gender (Q1)	Boy, Girl
School year (information from sample)	Year 8 , Year 10
School year and age (Q2)	Age if in Year 8, Age if in Year 10
Ethnicity (Q3)	White , black, Asian
School region (school information from sample)	London , North East, North West, Yorkshire and Humber, East Midlands, West Midlands, Eastern, South East, South West, Wales, Scotland
Household type (Q27)	Two parents , single mum, single dad, step parent, grandparents only, guardian
Siblings (Q27)	Has siblings , sole child
Car in household (Q35)	Has car, no car
Family reads tabloids (Q36)	Yes, No
Parents bet (Q37)	Yes, No
Parents play the National Lottery (Q37)	Yes, No
Parents approve of children playing the National Lottery/slot machines (Q22)	Yes (respondent failed to disagree with proposition that both parents would think it okay for child of their age to play either or both the National Lottery and slot machines), No
Permissive parents in respect to smoking and alcohol (Q22)	Yes (respondent failed to disagree with proposition that both parents would think it okay for child of their age to either smoke and/or drink), No
Percent free school meals (school information from sample)	(Continuous)
GCSE success rate (school information from sample)	(Continuous)
Coastal (school information from sample)	Yes (child's school is within five miles of coast), No
Pocket money (Q33)	(Continuous)

Drugs	Yes (used drugs other than alcohol or cigarettes in past week), No
Alcohol	Yes (drank alcohol in past week), No
Cigarettes	Yes (smoked cigarettes in past week), No
Plays free games	Yes (played free online gambling games in past week), No

Key findings

The large sample size permitted both the participation in gambling logit model, and the ordered logit model that accounts for DSM-IV-MR-J score to achieve a high degree of explanatory power. In results from both models, several risk factors with large impacts and strong statistical significance were identified. Consequently, very different predicted probabilities (for gambling and problem gambling) emerged for different bundles of child, school and home characteristics. If information collected had related to less relevant factors then similar probability forecasts would have been made across all children because factors that allowed discrimination between types of children would have been absent from the model.

- Boys were more likely than girls to gamble: if both had otherwise ‘average’ characteristics, a boy had a probability of gambling in the past seven days very nearly 15 percentage points higher than a girl. Results from modelling participation in other ‘vices’ show that the same gender bias applied for drugs, but not alcohol (gender neutral) nor cigarettes (where girls were more likely than boys to participate). Boys were also more likely than girls to be problem gamblers.
- Age and school year had limited effects on likelihood of gambling, and on likelihood of being a problem gambler, though older children in year 10 were slightly more likely to participate.
- Asian children were no more likely than white or black children to gamble; however, Asian children who gambled were more likely to be problem gamblers. For example, conditional on gambling, a white boy

with “average” characteristics⁶⁴ has a probability of 0.0173 (about 17 in 1,000) of being a problem gambler according to the DSM-IV-MR-J screen (i.e. four or more positive responses). For an Asian boy, the figure rises very steeply to 0.0455 (about 45 in 1,000).

- Regional effects were limited: broadly, child gambling and problem gambling patterns were similar for children with similar characteristics attending similar types of school.
- Children from a home with a single mother were no more likely to gamble, or show signs of problem gambling, than children from two parent households. Being from a home with a single mother is therefore not an independent risk factor for gambling (although it was for alcohol, cigarettes and drugs). Single father was also statistically insignificant as a risk factor but, in this case, there were far fewer children observed and hence one can be less sure about the absence of a relationship.
- Children with a guardian (rather than parent) were more likely to gamble: the probability of a boy with a guardian gambling in the past seven days was around 12.5 percentage points higher than average. However, this was not associated with an increase in the predicted score on DSM-IV.
- Children with no other siblings living in the household were more likely than those residing with siblings both to gamble and to display problem gambling traits. For example, for an average boy who gambles, being the only child in the household raises the predicted probability of being a problem gambler from 0.017 to 0.026 (from 17 in 1,000 to 26 in 1,000).
- The amount of pocket money or other income a child receives is associated with likelihood of gambling and, less strongly, likelihood of being a problem gambler. For example, for the average boy, the

⁶⁴ As described by categories in bold type in Box 1, receiving average pocket money, and attending a school with the mean values recorded in the sample for free school meals and GCSE success rate.

likelihood of past-week gambling increased by 1.6 percentage points for each £1 increase in pocket money received.

- Perceiving that parents would condone children their age gambling was also associated with a higher probability of gambling, and an increased likelihood that a child who did gamble would be recorded as a problem gambler.
- Having a parent who bets raises substantially the probability that a child gambler will also be a problem gambler; but this is not true for parental engagement with the National Lottery, which is not a significant predictor of a child gambler's problem gambling score.
- Children attending schools near the coast were significantly more likely than others to have gambled within the preceding seven days. However, the variable was insignificant in accounting for problem gambling. Together, these findings say that seaside arcades may create more problem gamblers but only because they provide more opportunities for children to participate in gambling activities and therefore contribute to the pool of those children who gamble at all. The arcades do not appear to make it more likely that a child who already gambles will also be found to be a problem gambler.⁶⁵
- Children attending higher performing schools were less likely to gamble, and less likely to be problem gamblers if they did so, than those attending lower performing schools.
- A children attending a school with a more deprived student population was slightly less likely to gamble but, if she or he in fact gambled, he or she was more likely to display problem gambling characteristics. The effect was substantial. For example, the probability of an average boy gambler being classified as a problem gambler was twice as high if he attended a school where 50% of the pupils received a free school meal than schools where 10% were eligible for free school meals.

⁶⁵ It is possible that the geographic distance to arcades is a predictor for gambling among Asian males (as stated, a group already more likely than average to gamble) but this would need further investigation.

- Engaging in other risky behaviours is associated with higher probabilities of participating in gambling. For example, the probability that a child with average characteristics had gambled in the past seven days was raised (by ten percentage points for boys and four percentage points for girls) if they had drunk alcohol in the preceding seven days.
- Playing free online gambling games in the preceding seven days was, in terms of the magnitude of effect, the single most important predictor of whether a child had gambled for money in the past seven days, and one of the most important predictors of problem gambling among those who had gambled. The very high correlations might be interpreted as suggesting that it is not only the thrill of winning and losing money that makes a child gamble: those who are drawn to ‘real’ gambling are also attracted to ‘pretend’ gambling. Whatever the reason, the statistical association between gambling, problem gambling and playing free games clearly calls for further research to illuminate the issue of whether regulation should restrict companies from allowing minors access to practice games.⁶⁶ The National Lottery already operates age restrictions for practice games on its website which require players to be registered following an age verification process before they can access free trial games.

Slot machines and National Lottery products

We repeated our analysis separately to gambling prevalence in respect of slot machines and products offered by the National Lottery. The models are inevitably less statistically well determined because, particularly for the National Lottery, prevalence rates were much lower and therefore the models are based on smaller numbers of players. Nevertheless, the empirical exercises (results from which are shown in Appendix 5) pointed in some interesting directions.

⁶⁶ One possibility put to us was that the correlation between “any gambling” and *free games* could be explained by the “pretend” games being used by children as the basis for “real” money bets with friends. However, the data reveal that, in fact, *free games* is less highly correlated with betting with friends than with other modes of gambling.

Many of the findings with respect to the “any gambling model” applied equally to participation in slot machines and National Lottery products separately:

- Boys were more likely to be slot machine players and more likely to play National Lottery games (though the gender divide was less pronounced for the latter).
- Where the child was the only child in the household, they were more likely than children living with siblings, with similar characteristics, to participate in either of these modes of gambling and more likely to display problem gambling traits if they did participate.
- Playing free online games was again a predictor of both participation and propensity to score highly on DSM-IV-MR-J
- In the case of slot machine play, a child’s use of alcohol, cigarettes and drugs all proved to be statistically strong predictors, with alcohol showing the largest marginal effect. However, only participating in smoking helped predict which slot machine players would score highly on the problem gambling screen. For National Lottery players, only cigarette and drug use were risk factors for participation and none of these habits helped predict problem gambling score.
- Having parents who engage in book-maker betting was associated with a significantly elevated probability of playing slot machines but had no impact on the probability that a child had purchased National Lottery products.
- Having parents who played the National Lottery had a statistically significant role in predicting which children bought National Lottery products.
- Living near the coast was a significant predictor that a child had played slot machines in the preceding seven days, but had no influence on whether a child had purchased a National Lottery product, implying that any tendency for arcades to draw children to machine gaming did not affect their attitudes to the National Lottery.

- Asian children were, if anything, less likely to engage in playing slot machines than white children; but, amongst child slot machine players, Asians were more likely to score highly on the DSM-IV-MR-J screen. This is similar to the result in the “any gambling” model. For National Lottery products, however, Asian adolescents were both more likely to have taken part than white children⁶⁷ and more likely to be problem gamblers if they had done so. Ethnic differences in gambling behaviour is plainly a matter for further research.
- Children attending schools with a higher level of attainment was associated with a lower propensity to play slot machines and a lower probability of problem gambling amongst those pupils who did so. For National Lottery products, high attainment was also a negative predictor of participation but was irrelevant in accounting for DSM-IV-MR-J score.

⁶⁷ For a white boy with “average” characteristics, probability of participation was .027; but this rises to .045 for an Asian boy with otherwise identical characteristics.

The power of the models

We have identified risk factors, for children in the early years of secondary school for participation in gambling activity and for problem gambling (conditional on participation). The models we have estimated are essentially forecasting models which permit policy makers to assess how likely a given type of child is to gamble or suffer from problem gambling. But how discriminating are the models? The answer is that they are very discriminating since they give very different predictions for different types of child.

To illustrate this, **we present predictions of seven-day gambling for six stylised children**, three boys and three girls. All live in London (but, it will be recalled, regional differences are revealed by the modelling to be small, and so probabilities would not vary much if we “moved” our six children elsewhere). None of the six stylised children in the table below reflects the most extreme sets of characteristics that could have been presented. Nevertheless, the range of probabilities for seven-day gambling is from 0.052 to 0.853 (5.2% to 85.3%). This contrast between predicted probabilities is a firm indication that the design of the survey was successful in including variables that had a significant influence in accounting for the prevalence of gambling among young adolescents. If information collected had related to less relevant factors then similar probability forecasts would have been made across all children. This is even truer for the probability that a child who gambles is a problem gambler (defined by four or more positive responses on DSM-IV-MR-J). The conditional probabilities across the six children range from 0.007 to, in the case of boy B, 0.369. The latter, very high, figure is driven by the child’s poor school environment and that he already uses alcohol, cigarettes and drugs. Co-morbidity of problem gambling with these other behaviours is, of course, well-documented in the literature on adult gambling.

The model for predicting problem gambling score displays such variance in predictions that it would appear likely to be potentially useful amongst youth, social care and health professional workers, working with individual teenage clients in specialist settings, who might benefit from screening for problem gambling issues. It also identifies settings, such as schools with high indices

of deprivation, where problem gambling education may be focussed most effectively. The current survey also collected information on children's use of alcohol, cigarettes and illicit drugs. The dataset therefore also provides the potential for developing models and software that would identify which children are most at risk of engaging in these other types of problematic behaviour. It illustrates that formal statistical analysis has the potential to extract practically beneficial insights from youth prevalence surveys.

Table 12: Predicted probabilities from modelling “any gambling” and “DSM-IV-MR-J score conditional on any gambling” using stylised children as example types

		Probability (seven –day gambling)	Probability (DSM score of 4 or above) given seven-day gambling
BOY A	school year 10, age 14, white, in care of a guardian, no other child in household, £30 per week pocket money, household has car, no tabloid papers, coastal location, guardian approving but not permissive, guardian plays Lottery but does not bet, plays free games and drinks but does not smoke or take drugs, school free meals and GCSE scores at average for England	0.853	0.120
BOY B	school year 10, age 14, white, two parent family, no other children at home, £20 per week pocket money, no car, tabloid papers, inland location, parents approving and permissive, parents play Lottery and bet, does not play free games, drinks, smokes and takes drugs, school deprived (40% free school meals) and poorly performing (GCSE success rate 25%)	0.659	0.369
BOY C	school year 8, age 12, white, single mother, not a sole child, £10 per week pocket money, household has car, no tabloid papers, inland location, parent is neither approving nor permissive, parent plays Lottery but does not bet, no free games or drinking or smoking or drugs, school has average deprivation (10.17% free school meals) and good GCSE performance (80%)	.139	0.012
GIRL A	similar to BOY C except for gender	0.052	0.007
GIRL B	school year 10, age 14, white, two parent family, not a sole child, top band for pocket money (over £60 per week), household has car, no tabloid papers, inland location, parent is neither approving nor permissive, parent plays Lottery but does not bet, does not play free games, drink or take drugs but does smoke, school is one of those with zero free school meal take-up and GCSE performance is good (80%)	0.118	0.019
GIRL C	Similar to girl B but has only £10 per week pocket money	0.053	0.009

Appendices

Appendix 1: Technical details

Methodology

The current survey forms part of a series of research projects carried out by the National Lottery Commission in recent years to gather trend information on key indicators (such as past-week participation in gambling). As such, the methodology used for the survey replicates the design of these previous surveys by using self-completion questionnaires administered in supervised classroom sessions.

This section provides more detail about how the methodology was implemented.

Obtaining schools' agreement to participate

A pre-notification letter was mailed to all sampled schools to inform them that the survey was taking place and asking them to participate. The letter explained the background to the research, why the participation of their school was important, and gave some details about how the survey process would work in practice. A fax-back reply form was enclosed with the letters which schools could use to signal their intention to participate or opt out of the research. Those who were willing to participate were asked to provide details of staff contacts and potential dates for the classroom sessions to take place to help in scheduling appointments. Those who were not willing to take part were asked to give the reasons why.

Any schools not responding to the letter were followed up by telephone calls by the research team in order to maximise response (See below for school response rates).

The initial letter also contained a FAQ (Frequently Asked Questions) sheet which gave teaching staff detailed information about the survey. Anecdotal evidence indicates that this helped to alleviate concerns schools may have had in regard to data protection issues.

An additional stage was used for the survey in Scotland: prior to sending letters to schools, a letter was sent to local education authorities asking their permission to approach schools about the research. In total, seven of 32 authorities in Scotland declined to take part, due to time pressures and schools' involvement in other research projects. The Scottish sample therefore represents the 25 authorities that were covered as part of this research⁶⁸.

Setting up the self-completion sessions

Once a school had agreed to take part in the research interviewers made contact with the named member of staff or the headteacher by telephone and obtained a listing of all classes containing pupils in curriculum years 8 and 10 (secondary 2 and secondary 3 in Scotland). From this list they selected a class using a random number grid (the "Kish Grid"). In selecting the sample of pupils within each school, our aim was to remove any unnecessary bias, thus ensuring that the sample is as random and therefore representative as possible.

To prevent high levels of clustering in the sample (which increases survey design effects and reduces the precision of survey estimates), no more than two classes (one from each year) were selected in each school.

Where possible interviewers ensured that all participating classes were mixed sex (unless in a single sex school) and mixed ability. Typically, this involved completing the surveys during form periods or Citizenship or PSHE lessons.

Conducting the self-completion sessions

The self-completion sessions were conducted by trained Ipsos MORI interviewers, experienced in this type of research. Each interviewer received full written interviewer instructions on how to conduct the survey and those less experienced in the methodology were provided with telephone briefings in advance of contacting schools. All interviewers were supervised by their local Area Managers and instructed to provide regular updates of their

⁶⁸ Please note that Glasgow and Aberdeen both participated in the survey.

progress to their Area Manager. In this way, any problems that emerged during fieldwork were quickly isolated and dealt with immediately.

The interviewer began each session with a short introduction to explain the purpose and importance of the survey to the children, answering any questions, and reassuring them of the confidentiality and anonymity of their responses. They also talked through how to complete the questionnaire and explained any particularly difficult questions. The teacher was asked to remain present during the lesson to help ensure the good behaviour of children. However, the need for their involvement was minimal in all schools.

Pupils then had around 20 minutes to complete the questionnaire, with the interviewer on hand to answer any questions or to give assistance if required, but only on procedural points, and not to help or discuss what pupils' answers should be, or the wider issues raised by the survey. At the end of the session each pupil was provided with an envelope in which to place their completed questionnaire; envelopes were then collected by the interviewer.

If four or more pupils were absent from the classroom session, the interviewer arranged to call back and conduct those interviews at a later date.

Return of questionnaires and scanning

Once completed the questionnaires were returned to the interviewer who despatched them back to Ipsos MORI's Head Office. On receipt, completed questionnaires were checked and booked in using a computerised system, which provided daily monitoring of fieldwork progress. The questionnaires themselves were scanned electronically to capture the data entered by respondents. The scanned data were then verified and back-checked. The verification checks involve experienced scanning operators back-checking any data that the computerised system cannot recognise; a series of checks are also conducted on data that has been correctly scanned, to confirm the software is functioning correctly. In addition, all fields capturing alpha-numeric data were checked on each questionnaire by a scanning operator.

Incentives

For pupil in-class self-completion surveys such as this we guarantee schools that all the administration will be carried out by the Ipsos MORI interviewer and there will be little or no additional work for the school. As such we do not offer schools financial incentives to take part in the research. However, in order to thank the schools who agreed to give lessons over to the research, and to thank the pupils who gave up their time, schools were provided with a resource pack from Tacade, which included a CD-Rom and lesson planning materials around the subject of responsible gambling, to help teachers prepare and deliver lessons on the subject. In addition pupils were each provided with a pen to complete the questionnaire which they were allowed to keep.

Sample design

Ipsos MORI and the National Lottery Commission agreed that a sample of 8,800 children would be the target for the 2008-09 survey. This comprised a target 8,000 interviews in England and Wales – which matched the achieved interview numbers from 2005-06 – and a target 800 interviews in Scotland. The sample of 8,800 would provide a representative sample of British children.

The sampling frames used for the survey were Edubase (which has a comprehensive listing of school contact information for all schools in England and Wales) and the Scottish schools database. The sampling frames included all maintained and independent schools in England and Wales. Schools not on the mainland (e.g. Channel Islands schools) and special schools were excluded, in order to ensure comparability with the previous surveys.

Schools that had already participated in other Ipsos MORI schools surveys during the 2008 academic year were excluded, to ensure that they were not over-burdened with requests to participate in research studies.

The sample universe was stratified by Government Office Region and sector (independent compared with maintained) and within each stratum schools

were selected proportional to the size of the school register. This stratification helps to generate a range of school types in the sample selected, and can help to improve survey estimates.

A sample of schools was selected with probability of selection proportionate to school size (the sampling frame included details of pupil roll). In total, 904 schools were selected (825 in England and Wales and 79 in Scotland).

Analysis of response

Of the 904 schools approached to take part in the research, 201 agreed to participate, giving an unadjusted response rate of 22%.

In addition to overall response rates, an important consideration in any survey is measurement of item non-response (i.e. non response to individual questions).

Questionnaire

In response to the data analysis carried out on the 2005-06 survey, and reflecting changes to gambling legislation since the previous survey was conducted, the National Lottery Commission, the University of Salford and Ipsos MORI carried out a full-scale review of the questionnaire. Several questions on the survey were identified as key tracking questions, and were retained in the same (or very similar) format, but several modifications were made to questions which either were deemed not to have worked well in previous surveys, or which were out of date given the changing legal and social landscape. In addition, the question ordering was considered carefully to ensure that the questionnaire progressed logically through the stages that children would follow when gambling. We also worked to ensure a more varied mix of attitudinal and behavioural questions to help maintain respondents' interest in the survey.

A draft questionnaire was developed by Ipsos MORI, the National Lottery Commission and the University of Salford. A series of cognitive tests were then conducted to test all aspects of the questionnaire (including layout and

format, question phrasing, and the comprehensiveness and clarity of response options). Tests were carried out with 15 children in total.

Cognitive methods can help researchers develop questions that are clear and can be understood by all respondents as the question designer intended. The methods draw on cognitive and motivational psychology, and provide a useful framework for understanding the cognitive processes involved in answering survey questions. The emphasis is on the identification of, and reasons for, problems with questions rather than quantifying the extent of any problems. In this sense, cognitive methods are akin to qualitative methods in that large sample sizes are not generally required.

Cognitive testing focuses upon the distinct actions that a respondent must perform in order to answer a survey question:

- Respondents must comprehend the questionnaire
- Respondents must recall and retrieve the relevant information.

Following the cognitive tests some key changes were made to the survey:

- Confidentiality statement moved to the top of the front page: interviewers noted in the cognitive testing that children did not typically read most of the information on the front page, so the most important information about confidentiality was moved to come first
- Since the questionnaire avoided the use of routing we had already included options for 'I have not done X in the past seven days' on several questions asking about past-week experiences of gambling, internet use etc. Since the majority of children had not done all the gambling activities we were asking about, the 'I have not' option was moved to the top of the pre-code list on all questions so that respondents could easily locate it.
- Several of the pre-coded lists of options were simplified based on feedback from respondents about points they did not understand

- Some questions were cut: for example, a question asking children to describe gambling advertisements they had seen in the past seven days did not appear to work well – rather than mentioning products/games children tended to give a synopsis of the advertisements they had seen without mentioning product names etc.
- The tests showed that children found it difficult to answer questions laid out in a grid format (e.g. where one question was asked about two games, with one column for scratchcards and one column for Lotto, and respondents were asked to make one selection per column). Questions were split out to ask about each game individually.
- ‘I have not gambled in the past 12 months’ option was added to questions in the DSM screen. We found that several respondents were uneasy about ticking ‘Never’ on the DSM screen, as they felt that answering the question at all inferred that they were a gambler.

Amendments were made to the questionnaire following the cognitive tests. The final questionnaire was agreed by the National Lottery Commission, and researchers at the University of Salford and Ipsos MORI. The questionnaires were then graphically designed by Ipsos MORI’s in-house graphics team. The questionnaires were printed on coloured paper (feedback from respondents involved in the cognitive interviews indicated that they found coloured questionnaires more appealing than black and white questionnaires).

Data analysis

Weighting

In order to ensure that the sample of children who participated in the research was representative, the data were weighted by region and gender, as in previous iterations of this research. The table below compares the universe and achieved profile: as illustrated, the profile of the achieved sample matched the universe closely. However, given the differences in some regions (mainly the South East and London), and the fact that region

appeared to be correlated with some of the key gambling participation measures, the decision was taken to apply weights to correct for these differences.

Table A.1	Region and gender profile of sample compared with universe		
	Universe	Achieved sample profile	Difference: universe - sample
	%	% respondents	+/-%
North East	4.57	2.97	1.60%
North West	12.62	9.77	2.85%
Yorkshire & Humb.	9.14	6.7	2.44%
East Mids	7.68	4.89	2.79%
West Mids	9.78	11.99	-2.21%
Eastern	9.51	8.07	1.44%
SE & London	24.14	28.33	-4.19%
South West	8.41	9.59	-1.18%
Wales	5.58	7.97	-2.39%
Scotland	8.55	9.72	-1.17%
Boy	50.9	49.9	1.00%
Girl	49.1	49.6	-0.50%

Source: Ipsos MORI

Ipsos MORI also considered whether to weight the data by school type, but as shown in the table below, the achieved profile of participating schools closely matched that of the start sample on key variables of interest.

Table A.2	School type profile of sample compared with universe		
	All schools sampled	All participating schools	Difference: sampled-participating +/-
<i>Deprivation of school area (IMD)</i>			
Least deprived	35%	34%	1%
Deprived	31%	33%	-2%
Most deprived	34%	33%	2%
<i>School size</i>			
Large	46%	48%	-1%
Medium	39%	34%	4%
Small	15%	18%	-3%
Least deprived	35%	34%	1%

Source: Ipsos MORI

As described above, the profile of the achieved sample matched the profile of the universe closely. As such, the weights that were applied were fairly small, and weighting therefore has a negligible impact on the provision of the survey estimates. The effective sample size following the application of weights was 8,412 (accounting for the design effect due to weighting only), while the overall number of respondents interviewed was 8,958.

Interpretation of the data and statistical reliability

When interpreting the findings it is important to remember that the results are only based on a sample of 12 to 15 year olds, and not on all 12 to 15 year olds in Great Britain. Consequently, results are subject to sampling tolerances, and not all differences between subgroups, or over time, are significant.

It is possible to predict what the difference between the results of the survey and the 'true' results might be, based on what is known about the size of the sample on which

the results were based, and the number of times that a particular response was given. This is normally presented as a 95 per cent confidence interval – that is, the chances are 95 in 100 that the true value will fall within a specified range.

For example, based on the achieved sample of 8,958 questionnaires completed by children, and assuming a random sample, aggregate findings will be within +/- 1 percentage point based on 95 per cent confidence intervals. The table below illustrates the estimated ranges for the overall sample, and key sub-groups within that sample, and percentage results at the 95 per cent confidence interval.

Table B Approximate sampling tolerances applicable to percentages at or near these levels	10% or 90%	30% or 70%	50%
	±	±	±
All children (8,958)	0.6	0.9	1
Curriculum year 8/S2 pupils (4,695)	0.9	1.3	1.4
Curriculum year 10/S3 pupils (4,263)	0.9	1.4	1.5
Male (4,466)	0.9	1.3	1.5
Female (4,447)	0.9	1.3	1.5
Past-week Lotto players (134)	5.1	7.8	8.5
Past-week scratchcard players (333)	3.2	4.9	5.4
Problem gambler (145)	4.9	7.5	8.2
At risk gambler (258)	3.7	5.6	6.1
Social gambler (1,022)	1.8	2.8	3.1

For example, 28% of all children said they played free or practice gambling games online in the seven days preceding their interview. We can be confident at the 95% level that the true result would lay between 27.1% and 28.9% (i.e. +/- 0.9% of the actual survey finding).

Comparing data over time

In some cases we are measuring changes in findings between the 2008-09 survey and 2005-06; as such it is important to consider the sampling tolerances. In other words, a difference must be at least a certain size between this and previous data sets to be considered statistically significant.

Table C gives the breakdown of the aggregate percentage required to show statistically significant differences between samples from the 2008-09 survey and the 2005-06 survey. For example, in 2005-06, five per cent of children reported playing Lotto in the past seven days compared with two per cent of children reporting the

same in 2008-09. As such this is a statistically significant difference, as the difference is greater than 0.9 percentage points.

Table C Size of sample on which survey result is based	Differences required for significance at the 95% confidence level at or near these percentages		
	10% or 90% ±	30% or 70% ±	50% ±
All children in 2008-09 (8,958) vs. all children in 2005-06 (8,017)	0.9	1.4	1.5
Curriculum year 8 pupils in 2008-09 (4,695) vs. curriculum year 8 pupils in 2005-06 (4,058)	1.3	1.9	2.1
Curriculum year 10 pupils in 2008-09 (4,263) vs. curriculum year 10 pupils in 2005-06 (3,959)	1.3	2.0	2.2

Only significant differences have been commented on in the following report.

Where percentages do not sum up to 100%, this may be due to computer rounding, the exclusion of don't know/not stated categories or multiple answers. Throughout the report, an asterisk (*) denotes any value less than one half of a per cent but more than zero, and a hyphen (-) represents zero.

Appendix 2: Profile of achieved sample

	Number	Unweighted	Weighted
Total	8,958	100	100
Gender			
Male	4466	50	51
Female	4447	50	49
Not stated	45	1	1
Age			
11	35	*	*
12	2921	33	33
13	1725	19	19
14	3034	34	34
15	1210	14	14
Not stated	35	*	*
Curriculum year			
8	4695	52	51
10	4263	48	49
Ethnic Origin			
White	7680	86	86
BME	1119	12	12
Not stated	85	1	1
Region			
London	829	9	8
West Midlands	1074	12	10
East Midlands	438	5	8
South east	1709	19	16
South west	859	10	8
North east	266	3	5
North west	875	10	13
Eastern	723	8	9
Yorkshire & Humber	600	7	9
Wales	714	8	6
Scotland	871	9	8

Source: Ipsos MORI

Appendix 3: Data cleaning

A number of simple logic and sense checks were applied to the data to ensure consistency of responses across questions. For example, if a respondent indicated how much time they had spent online at Q5 and how much money they had spent online at Q6 but had not said at Q4 that they used the internet, the data were edited to force a positive response at Q4.

Similar checks were applied wherever possible (details below). These checks also corrected for those respondents who had not correctly followed the routing and had answered questions which did not apply to them: these responses were blanked so they do not appear in the data.

Table A.4: List of data editing rules applied to data

Q4-6	If they have said 'No' at Q4 but given an answer at Q5 and/or Q6, regardless of what that answer is, remove them from Q5-6
Q5	If they have coded don't know + another code, blank the don't know If they have multi-coded two valid time codes, always select the longest time spent
Q6, Q7, Q12, Q13, Q14, Q15, Q16, Q17, Q18, Q19, Q21:	If they have selected code 1 ('I have never/I have not') + any other code, select code 1 If they have selected any other code + don't know, always select the other answer
Q9 – 10	If they have multicoded, remove from the data
Q13, Q14 and Q33	If they have coded two monetary amounts, always select the higher amount If they have ticked an amount + don't know, blank the don't know
Q20	If they have multicoded 1 or 2 with don't know, blank the don't know If they have multicoded 1 + 2, look at response to Q21 to determine the correct response at Q20. If their answer at Q21 is unclear, remove from the data.

Q22a-d	<p>If they have coded a response + don't know, blank the don't know</p> <p>If they have coded more than one valid response, remove them from the question</p>
Q23	If they have multicoded, remove them from the question
Q25 – 31	<p>If they have coded 1 on one of these questions, they should be coded 1 for all the questions.</p> <p>If they have coded 1 plus another code, always blank the other code</p>
Q35	<p>If multicoded 1 or 2 with don't know, blank the don't know</p> <p>If multicoded 1 + 2 remove from the data.</p>
Q36	<p>If they have coded any paper/s + don't know, blank the don't know</p> <p>If they have coded any paper/s + Do not read newspapers, blank the Do not read code</p> <p>If they have coded do not read + don't know, blank the don't know</p>
Q37	<p>If they have coded a response + don't know, blank the don't know</p> <p>If they have coded a response and code 6 (my parents don't play any of these games) blank code 6</p>
Q38	<p>If multicoded 1 or 2 with don't know, blank the don't know</p> <p>If multicoded 1 +2, remove from the data</p>
Q40-42	<p>If coded 1 at any of these, they should have coded 1 at all three.</p> <p>If coded 1 plus don't know, blank the don't know</p> <p>If coded 2-4 plus don't know, blank the don't know</p> <p>If coded 1 plus codes 2-4, blank codes 2-4</p>

Source: Ipsos MORI

As with any paper survey (i.e. as oppose to surveys using electronically-routed interviewing scripts) there were a large number of individual-level inconsistencies in

responses. The editing rules above resolved most of these; however, as it is not always possible to determine what the “correct” response should be, some minor inconsistencies remain in the data. These are highlighted in the main body of the report where they occur.

Appendix 4: Marked-up questionnaire

- This topline reports interviews with 8,958 children in curriculum Years 8 and 10 in England and Wales and Years S2 and S3 in Scotland.
- Sessions were conducted in 179 schools in England and Wales, and 22 schools in Scotland.
- Self-completion questionnaires were completed in schools between November 2008 and February 2009.
- An asterisk (*) denotes a finding of less than 0.5%, but greater than zero.
- Where figures do not add up to 100%, this is due to multiple coding or computer rounding.
- Results based on all respondents (8,958) unless otherwise stated.
- Tracking data from surveys run in 2007-8 and 2004-5 are only shown for questions where the wording has not been changed substantially over time. Even so, the minor changes to the phrasing of these questions can still impact on comparability, and so should be treated with caution.
- Data in this topline are weighted by region and gender.

Q1. Are you a boy or a girl?

Base: All [8958]

	2008/09 %
I am a boy	51
I am a girl	49
Not stated	1

Q2. How old are you?

Base: All [8958]

	2008/09 %
10	*
11	*
12	33
13	19
14	34
15	14
16	*
Not stated	*

Q3. Which of these best describes you?

Base: All [8958]

	2008/09 %
White	86
British Black	1
Black Caribbean	1
Black African	1
Black Other	*
British Asian	3
Indian	1
Pakistani	1
Bangladeshi	1
Chinese	*
East African Asian	*
Mixed race	3
Other	1
Not stated	1

Q4. Have you used the internet in the past 7 days outside school lessons?⁶⁹

Base: All [8958]

	2008/09 %	2007/8 %
Yes	96	89
No	3	5
Don't know	1	4
Not stated	*	2

Q5. In total, how much time have you spent on the internet outside school lessons in the past 7 days?

Base: All who have used the internet in the past 7 days [8621]

	2008/09 %
Less than 1 hour	12
1-4 hours	34
5-7 hours	17
8-10 hours	10
11-15 hours	7
More than 15 hours	11
Don't know	9
Not stated	*

⁶⁹ N.B Question wording changed slightly between the two surveys. 2007/08 wording: *Have you used the internet in the past 7 days? Please include any time that you have used the internet outside of school lessons, such as in school during breaks, before lessons start or at after-school clubs, or at home, at friends' houses, or in any other places.*

Q6. **If you have spent your OWN money on the internet in the past 7 days, what did you spend it on?**

Base: All who have used the internet in the past 7 days [8621]

	2008/09 %
I have not spent my own money on the internet in the past 7 days	68
Clothes and shoes	10
Music CDs or downloads	9
Computer games	8
DVDs	5
Make-up and toiletries	3
Digital camera, game console, DVD player or other electrical goods	3
Tickets to a concert or play	2
Books	2
Gambling websites (not including the National Lottery)	1
Equipment for sports/ hobbies	1
A gift/present	*
National Lottery games	*
Tickets for events/travel	*
Food/drink	*
Getting a membership/subscription	*
Adult material/porn	*
Something else	5
Don't know	2
Not stated	4

Q7. Have you played any of these free or practice gambling games on the internet in the past 7 days?

Base: All [8958]

	2008/09 %
No, I have not played any free or practice gambling games	67
Bebo games	19
Facebook poker	8
Online blackjack	3
Online bingo	2
Online roulette	2
Other online poker websites	3
Any other free or practice gambling games on the internet	6
Don't know	3
Not stated	1

Q8. We'd now like you to think about the National Lottery and other gambling like poker, bingo, and sports betting. Have you seen any adverts or pop-ups for them on TV or on the internet recently?

Base: All [8958]

	2008/09 %
Yes	78
No	10
Don't know/can't remember	12
Not stated	*

Q9. During the past 7 days, have you tried to buy any National Lottery tickets (e.g. Lotto and EuroMillions) with your OWN money, whether you actually managed to buy them or not? ⁷⁰

Base: All [8958]

	2008/09 %	2005/6 %
Yes	2	5
No	97	91
Not stated	1	3

⁷⁰ N.B. Wording used in 2005/6 was slightly different. 2005/6 wording: *During the past 7 days, have you gone into a supermarket or another shop and tried to buy any National Lottery draw tickets, whether you actually managed to buy a ticket or not?*

Q10. **During the past 7 days, have you tried to buy scratchcards with your OWN money, whether you actually managed to buy them or not?**⁷¹

Base: All [8958]

	2008/09 %	2005/6 %
Yes	4	8
No	96	89
Not stated	1	3

Q11. **Have you spent any of YOUR money on any of the following in the past 7 days?**

We want to know about games you played yourself.⁷²

Base: All [8958]

	2008/09 %	2005/6 %
Fruit machines	8	17
Placing a private bet for money (e.g. with friends)	7	10
Playing cards for money with friends*	7	N/A
scratchcards	4	6
Personally placing a bet at a betting shop (e.g. on football or horseracing)	2	3
Lotto (the main National Lottery draw)	2	5
Gambling websites (e.g. internet poker, internet casinos, internet bingo, internet betting on sport or racing)*	1	N/A
Bingo at a bingo club	1	2
National Lottery instant win games on the internet	1	1
Any other National Lottery games (e.g. Thunderball, Hotpicks, EuroMillions, Dream Number, Daily Play)	1	6
Other gambling machines*	4	N/A
Any other gambling	2	2
No, none of the above	76	70
Not stated	3	4

⁷¹ N.B. Wording used in 2005/06 was different: *During the past 7 days, have you gone into a supermarket or another shop and tried to buy a Scratchcard, whether you actually managed to buy a ticket or not?*

⁷² N.B. Clarifying wording in 2005/6 was slightly different and some of the options are new this year. 2005/06 wording: *Remember this is about games that you might have played and not your parents.* New options are asterixed in table.

Q12. If you have played the National Lottery or any other gambling games over the past 7 days, which of these best explains why you played them?

Base: All who have played National Lottery games or scratchcards in the past 7 days [342]

	2008/09 %
To try to win money	65
It is exciting	41
To cheer me up	20
To test how good I am at winning	20
To do something my friends or relatives do	17
To get me out of the house	13
To show I can do it better than my friends	12
To meet and make friends	10
For a laugh/fun/enjoyment	1
Because I was bored/there was nothing else to do	1
Other	4
Don't know	4

Q13. How much of your own money did you spend on National Lottery tickets (e.g. Lotto and EuroMillions) in the past 7 days?⁷³

Base: All who have played Lotto or other National Lottery games in the past 7 days with their own money and stated an answer [105]

	2008/09 %	2005/6 %
Less than £1	5	5
£1.00	33	18
£1.01 - £2.00	25	23
£2.01 - £3.00	16	8
£3.01 - £4.00	4	7
£4.01 - £5.00	9	14
£5.01 or more	8	26

⁷³ N.B. Wording in 2005/6 asked about Lotto only, and the scale provided was larger (up to £30.00 or more)

Q14. How much of your own money did you spend on scratchcards in the past 7 days?⁷⁴

Base: All who have played scratchcards in the past 7 days with their own money and stated an answer [244]

	2008/09 %	2005/6 %
Less than £1	6	9
£1.00	28	
£1.01 - £2.00	18	50
£2.01 - £3.00	17	13
£3.01 - £4.00	8	5
£4.01 - £5.00	11	11
£5.01 or more	11	11

Q15. From the list below, can you tell us where you bought National Lottery tickets (e.g. Lotto and EuroMillions) or scratchcards in the past 7 days?

Base: All who have played National Lottery or scratchcards in the past 7 days with their own money and stated a location [305]

	2008/09 %
None - I did not buy National Lottery tickets or scratchcards in the past 7 days	0
Corner shop/Newsagent	62
Supermarket	26
Post office	14
Petrol station shop	11
Stall in a shopping centre	7
Somewhere else	10
Can't remember/ don't know	12

⁷⁴ N.B. Scale in 2005/6 was larger (up to £30.00 or more)

Q16. **Why did you FIRST buy, or try to buy, National Lottery tickets (e.g. Lotto or EuroMillions) or scratchcards?**

Base: All [8958]

	2008/09 %
I have never tried to buy National Lottery tickets or scratchcards	77
Wanted to win/thought I might win some money	3
Because my family buy them/got them when my family did	1
Seemed like fun/exciting	1
I want to be rich/millionaire	*
Bought them on behalf of someone/parents/family	*
I have tried/bought them before	*
Found them in the newspaper	*
To see if I could/Try something different	*
Was bored/needed something to do	*
Others	2
Not stated	13
Don't know	3

Q17. **During the past 7 days, has anyone refused to sell you National Lottery tickets (e.g. Lotto or EuroMillions) or scratchcards?**

Base: All who tried to buy National Lottery tickets or scratchcards in the past 7 days and stated whether refused [315]

	2008/09 %
Yes	35
No	65

Q18. What is the total number of times someone has refused to sell you National Lottery tickets or scratchcards in the past 7 days?

Base: All who have been refused a National Lottery ticket or Scratchcard purchase in the past 7 days [106]

	2008/09 %
I have not been refused	2
1 time	29
2 times	19
3 times	8
4 times	6
5 or more times	13
Can't remember/ don't know	22

Q19. Which of these, if any, would put you off trying to buy National Lottery tickets (e.g. Lotto or EuroMillions) or scratchcards again?

Base: All who gave a reason or would not be put off buying National Lottery tickets again [1042]

	2008/09 %
If I was asked to provide proof that I was 16 or older	34
If the chances of winning were too low	30
If it was too much money	29
If I got in trouble with the shop for trying to buy tickets	19
If I got in trouble with my parents/guardians for trying to buy tickets	17
Other reason	7
Nothing would put me off trying to buy tickets again	5
Don't know	9

Q20. In the past 7 days, have you asked anybody else to buy you National Lottery tickets (e.g. Lotto or EuroMillions) or scratchcards?

Base: All [8958]

	2008/09 %
Yes	5
No	91
Don't know/can't remember	3
Not stated	1

Q21. Who have you asked to buy you National Lottery tickets (e.g. Lotto or EuroMillions) or scratchcards in the past 7 days?

Base: All who have asked someone else to buy a ticket for them and stated an answer [421]

	2008/09 %
My parent/guardian	68
My older brother/sister	17
Another relative	14
A friend who looks older	12
An older pupil at my school	4
Someone else	11
Can't remember/ don't know	3

Q22. Do you agree or disagree with these statements?

Base: All who stated an answer [see each column]

	Agree	Neither agree nor disagree	Disagree	My parents have different views from each other	Don't know
	%	%	%	%	%
[8895 a) My parents would think it OK for people my age to play the National Lottery]	8	11	53	5	23
[8856 b) My parents would think it OK for people my age to play on fruit machines]	20	15	40	5	21
[8846 c) My parents would think it OK for people my age to smoke cigarettes]	2	3	86	3	5
[8840 d) My parents would think it OK for people my age to drink alcohol with their friends]	7	12	66	7	9

Q23. How old do you think you have to be to do each of these things by law? If you aren't sure, please write in your best guess.

Base: All (8958)

	Buy alcohol	Buy cigarettes	Buy National Lottery tickets	Place a bet in a betting shop	Drive a car on the road
	%	%	%	%	%
16/Under 16	12	26	53	18	11
17	2	2	2	2	50
18	64	61	37	62	33
19	*	1	1	1	1
20	1	2	2	3	1
21	18	6	3	10	2
Over 21	1	1	*	1	*
Not stated	2	2	3	3	2

Q24. In the past 12 months how often have you found yourself thinking about gambling or planning to gamble?

Base: All eligible for DSM screen [1425]

	2008/09
	%
Never	14
Once or twice	43
Sometimes	29
Often	13

Q25. In the past 12 months how often have you gambled to help you escape from problems or when you are feeling bad?

Base: All eligible for DSM screen [1425]

	2008/09
	%
Never	67
Once or twice	21
Sometimes	8
Often	4

Q26. In the past 12 months have you felt bad or fed up when trying to cut down on gambling?

Base: All eligible for DSM screen [1425]

	2008/09 %
Never feel bad about trying to cut down	57
Once or twice	8
Sometimes	4
Often	2
Never try to cut down	29

Q27. In the past 12 months, have you needed to gamble with more and more money to get the amount of excitement you want?

Base: All eligible for DSM screen [1425]

	2008/09 %
Never	71
Once or twice	17
Sometimes	8
Often	5

Q28. In the past 12 months, have you ever spent much more than you planned to on gambling?

Base: All eligible for DSM screen [1425]

	2008/09 %
Never	65
Once or twice	23
Sometimes	7
Often	5

Q29. In the past 12 months, have you ever taken money from any of the following without permission to spend on gambling?

Base: All eligible for DSM screen [1425]

	2008/09 %
I have never taken money without permission to spend on gambling	79
Dinner money or fare money	8
Money from family	6
Money from things you have sold	5
Money from outside the family	2
Somewhere else	4

Q30. In the past 12 months, has your gambling ever led to the following?

Base: All eligible for DSM screen [1425]

a) Arguments with family/ friends or others

	2008/09 %
Never	88
Once or twice	9
Sometimes	2
Often	1

b) Telling lies to family/ friends or others

	2008/09 %
Never	87
Once or twice	9
Sometimes	2
Often	2

c) Borrowing money from family/ friends or others

	2008/09 %
Never	83
Once or twice	12
Sometimes	3
Often	2

d) Missing school

	2008/09 %
Never	94
Once or twice	3
Sometimes	1
Often	2

Q31. In the past 12 months, after losing money by gambling, have you returned another day to try to win back the money you lost?

Base: All eligible for DSM screen [1425]

	2008/09 %
Never	72
Less than half the time	19
More than half the time	5
Every time	4

Q32. Do you agree or disagree that sometimes you can't concentrate in school because you are thinking about gambling?

Base: All eligible for DSM screen [1425]

	2008/09 %
Agree	4
Neither agree nor disagree	7
Disagree	80
Don't know	8
Not stated	1

Q33. How much money do you get in a normal week?

Base: All [8958]

	2008/09 %
Nothing	11
£0.01 - £2.00	3
£2.01 – £3.00	4
£3.01 - £5.00	8
£5.01 - £7.00	8
£7.01 – £10.00	10
£10.01 – £15.00	15
£15.01 - £20.00	13
£20.01 – £30.00	12
£30.01 – £40.00	5
£40.01 – £50.00	3
£50.01 – £60.00	2
Over £60.00	1
Don't know / can't remember	3
Not stated	1

Q34. Who lives in your home?

Base: All [8958]

	2008/09 %
My mother	93
My stepmother	3
My father	65
My stepfather	12
My guardian	1
My brother(s), half brothers or step brothers	52
My sister(s), half sisters or step sisters	47
Grandparent(s)	4
Somebody else	7
Not stated	2

Q35. Does anyone in your household own any cars or vans?

Base: All [8958]

	2008/09 %
Yes	89
No	8
Don't know	1
Not stated	2

Q36. Which, if any, of these newspapers do you or people in your family read at least once a week?

Base: All [8958]

	2008/09 %
The Sun	40
Local newspaper	30
Daily Mail	29
Daily Mirror	16
News of the World	13
The Times	12
Mail on Sunday	12
The Guardian	8
The Star	8
Daily Telegraph	5
Daily Express	4
The Independent	3
Sunday Telegraph	3
Evening Standard	2
Financial Times	1
Saturday Telegraph	1
The Independent on Sunday	1
Sunday People	1
Other	12
Do not read newspapers	6

Don't know	12
Not stated	3

Q37. Do either of your parents or guardians play any of the games listed below?

Base: All [8958]

	2008/09 %
National Lottery games (e.g. Lotto or EuroMillions)	56
scratchcards	22
Personally placing a bet at a betting shop (e.g. on football or horseracing)	11
Bingo at a bingo club	8
Any other gambling (e.g. gambling online)	5
My parents don't play any of these games	24
I don't know if my parents/guardians play any of these games	11
Not stated	3

Q38. In the past 7 days, have you skipped school?

Base: All [8958]

	2008/09 %
Yes	6
No	90
Can't remember/don't know	2
Not stated	2

Q39. **Please look at the list below and say which, if any, you have used in the past 7 days.**

Base: All [8958]

	2008/09 %
Alcohol	26
Cigarettes	9
Cannabis (weed, grass, hash)	4
Solvents (glues, gas, aerosols)	4
Amphetamines (speed, whizz)	1
Cocaine powder or crack	2
Derbisol	1
Ecstasy ('E')	1
Heroin (smack)	1
Ketamine	1
LSD (acid, trips) or magic mushrooms	1
Other	4
None of these	60
Not stated	7

Q40. **In the past 12 months, how often have you found yourself thinking about gambling, or planning to gamble?**

Base: All eligible for DSM and stated an answer [1336]

	2008/09 %
Quite a lot	6
Only sometimes	38
Not at all	44
Don't know	11

Q41. **In the past 12 months, how often have you tried to cut down how much you gamble?**

Base: All eligible for DSM and stated an answer [1293]

	2008/09 %
Quite a lot	8
Only sometimes	8
Not at all	69
Don't know	16

Q42. **In the past 12 months, how often have you lied to your family, friends, or anyone else about how much you gamble?**

Base: All eligible for DSM and stated an answer [1307]

2008/09

%

Quite a lot	3
Only sometimes	8
Not at all	83
Don't know	6

Appendix 5: Full report of statistical regression analysis

The need for statistical modelling

The focus of interest in gambling prevalence surveys is invariably on the answers they provide to two questions: what proportion of the subject population participates in gambling and what proportion exhibits symptoms of problem gambling? These key indicators are readily calculable from the raw data generated by a survey and they provide obviously useful information for regulators. For example, comparing the numbers with those from previous surveys may yield evidence relevant to the assessment of policy initiatives such as (in the present case) efforts to reduce under-age play.

However, reliance on descriptive statistics becomes more problematic when attention is shifted from the whole sample to sub-groups of that sample. Misleading implications may then be drawn if only basic summary statistics are considered. For example, policy makers are often interested in whether children from one parent families exhibit an unusually high incidence of dysfunctional behaviour relative to those from two parent families. They often appear to do so, according to raw data collected in the past in a variety of contexts. In our context of gambling, findings are no different. In this survey, children from single parent families are both more likely to gamble and more likely to be problem gamblers than children from the rest of the population. Should we then conclude that a single parent home is a risk factor in under-age play and problem gambling? Not necessarily: children with single parents tend to be disproportionately concentrated in households with low incomes and in schools with high indices of deprivation. Once allowance is made for this, as it can be only if an appropriate statistical model is deployed, it is conceivable that the correlation between single parent and child gambling would disappear. In this case, the implication would be that attention should be addressed to gambling behaviour in poor communities. There would be no basis in evidence to justify targeting policy initiatives only at single parent families.

Our approach

The 2008-9 Survey of Children and Gambling provides a wealth of data for social scientists to use in coming years for statistical analysis that will further understanding of what makes young adolescents gamble and what puts them at risk of developing gambling related problems. In this chapter, we report results from a first exercise in econometric analysis of the rich data set made available from the survey. In seeking to account for which children gamble and on what, our exercise is in three parts. First, we build a model designed to predict the probability that a child with given characteristics will have gambled in the preceding seven days. Second, we repeat the exercise but with the focus on the whether a child will have played slot machines in the preceding seven days. Third, we consider the determinants of playing National Lottery games. Slot machines and National Lottery games (which include draw games and scratchcards) are the only modes of commercial gambling that attract a

seven-day participation rate of more than 2%, according to the Survey results, and so these are the subject of specific attention here.

For children who gamble on anything or play slot machines or buy National Lottery products, we also consider the predictors of their risks of exhibiting signs of problem gambling. Note that we therefore choose to model in turn (i.e. separately) the probability that a child gambles *and then* the probability that he or she experiences problem gambling *given* that he or she gambles. This enables richer conclusions to be drawn compared with a more conventional approach that would model the risk of problem gambling as a function of risk factors with *all* respondents (gamblers or not) included in the sample. The reason that conclusions are richer and provide sharper policy guidance is that some factors prove to have different (or even opposite) effects in terms of impacts on whether a child gambles and whether a child gambler is also a problem gambler.

Choice of statistical models

Multiple regression models provide a formal and efficient framework for using a data set to examine the relationship between a dependent variable, such as gambling behaviour, and the factors believed to be correlated with it (predictors). The model results are presented in the form of the equation that best fits the data and the coefficient on each predictor allows estimation of the impact of a one unit change in the value of that predictor (with the value of all other predictors held constant). Tests for statistical significance reveal how confident one can be that there exists a relationship between the dependent variable and each predictor. Multiple regression analysis is therefore an appropriate tool for testing what factors influence gambling behaviour.

The choice amongst the family of regression models available is dictated, to a large extent, by the nature of the dependent variable to be explained. Here, we are interested in whether or not the child gambled in the preceding seven days. This is a categorical variable, i.e. it can take only two values: either the child had gambled or the child had not gambled. To enable quantitative analysis, these two possibilities are assigned the numerical values one and zero respectively. An appropriate regression model should then have the property that it will predict (for given child characteristics) a number between one and zero: this number can then be interpreted as the forecast probability of whether such a child has gambled.

A very commonly employed model of this sort is the *logit* version of logistic regression. We report below logit estimation results to account for child gambling activity.

Our second question is what factors predict whether a child will display behaviour associated with problem gambling, given that he or she has gambled in the last seven days. Here, it would be feasible to use the logit model again, with the categorical dependent variable this time assigned the value one where the child had scored four positives on the problem gambling screen DSM-IV-MR-J and zero otherwise. However, this would have the disadvantage of not using all the information available because no distinction would be made, for example, between children with zero and three positives or between children with four and six positives. Therefore,

we adopt a less Manichæan approach. Rather than treat subjects as either problem gamblers or not, on the basis of a threshold number of positives on DSM-IV-MR-J, we instead model the number of positive responses to the DSM-IV-MR-J questions. The technique adopted is ordered logistic regression (often termed *ordered logit*). In our data, the range in the number of positive responses among children who had gambled in the previous seven days was from zero (sixty percent of the sample) to eight (less than one half of one percent of the sample). We treat each number in this range as a separate category. For a child with given characteristics, ordered logit predicts the probabilities for the child falling into each of the nine categories of DSM-IV-MR-J responses. A positive coefficient estimate associated with a predictor variable suggests that the factor in question shifts the child's probabilities in a direction such that it is more likely that a high number of positive responses will have been recorded. Note that it would have been simpler to model with ordinary least squares regression; but this would have had the drawback of treating an increase of one in the number of positive responses as equivalent whether this was (for example) from one to two or from four to five. Treating the number of positive responses as categories is therefore a more correct approach.

Variables employed in the statistical models

For convenience in exposition, we used the same predictors in the logit model (to account for seven day gambling) and the ordered logit model (to account for DSM-IV-MR-J score). Here, we describe those predictor variables.

Gender *Boy* is a categorical variable assigned the value one where the observation relates to a boy. Where there is a set of categorical variables that comprise a full listing of possible categories, one has to be left out of the model specification. Here the excluded or reference category is *girl*. The coefficient associated with *boy* in the results then reveals the impact on (for example) the expected probability of seven-day gambling if the subject is a boy rather than being in the reference category (*girl*).

School year and age The sample comprised respondents who were pupils in either school year 8 or school year 10 (or equivalent in Scotland). We include *Year 10* as a categorical variable and also employ two interaction variables, *age times Year 8* and *age times Year 10* to capture any tendency for older children in a class to be more likely to gamble.

Ethnicity Q3 of the survey asked respondents to select which of thirteen categories best described them. These responses were simplified into white, black and Asian. Whites comprise 85% of the whole sample and this is our reference category: *black* and *Asian* appear as predictor variables in our models. Note that the number of ethnic Chinese in the sample was very small and so findings with respect to *Asian* are likely to be driven by the behaviour of those with Indian, Pakistani or Bangladeshi background.

Region London was our reference category. Categorical variables representing Scotland, Wales and eight standard English regions are included to capture differences in behaviour compared with London. Region is defined by the location of the school a child attended.

Household type Q27 asked respondents who else lived in their home. The information collected was used to construct self-explanatory categorical variables to describe situations different from that of a mother and father both being present: *single mum* (30.2% of the sample), *single dad* (3.3%), *step parent* (13.0%), *grandparent(s) only* (0.5%) and *guardian* (1.4%). Note that even the least frequently observed household types account for reasonably large absolute numbers given the generous size of the sample, so that robust statistical assessment of the implications for gambling behaviour is likely still to be a possibility.

Siblings The information in Q27 was also used to identify situations where the respondent was the *sole child* in the home. This category accounted for 22.8% of the sample.

Other home characteristics No direct information was available on the socio-economic status of the household in which a child lived. However, Q35 asked whether anyone at home owned a car and Q36 asked respondents about which newspapers were read at home. Answers to both are likely to be correlated with socio-economic status and reading tabloid newspapers may be a proxy for specific cultural attitudes. Accordingly, categorical variables *car* and *tabloid* are included in our models.

Parental behaviour and attitudes Q37 asked whether either parent participated in named modes of gambling. Encouragingly, the pattern of responses was such as one might have anticipated on the basis of adults' answers to questions in the last British Gambling Prevalence Survey. We constructed two categorical variables, *parents bet* and *parents play the Lottery* (National Lottery draw games) to capture possible transmission of behaviour from parents. We constructed further categorical variables from answers to Q22, which asked respondents about parental attitudes to children of their age playing the National Lottery, playing slot machines, smoking cigarettes and drinking alcohol. *Approving* is set equal to one whenever a child failed to disagree with the proposition that both parents would think it okay for children of his or her age to play either or both the Lottery and slot machines. *Permissive* is similarly defined to describe parental attitudes to smoking and drinking. Of course, it should be borne in mind that Q37 asks children what views they think their parents take. Their perceptions may be incorrect and this might lead to overstatement of the correlation between child gambling behaviour and parental attitudes to gambling. For example, children who gamble may engage in wishful thinking or mistake resignation for approval.

School variables *Percent free school meals* is a standard proxy for the level of deprivation in a school and *GCSE success rate* (the percentage of pupils gaining five or more A-C grades at GCSE) is similarly a standard measure of expectations in terms of educational attainment. These variables enable us to capture influences from the school as well as the home environment. Unfortunately, the two indicators are available for schools in England only. To allow for this, the model has to include a categorical variable that represent non-availability of GCSE information (this was also missing for one English school). Because the only schools without free school meals data were in Wales and Scotland, this solution is not feasible in the case of missing free school meal data. Thus the coefficients on the Wales and Scotland regional categorical variables will be affected and, unlike those for English regions, they will

not be able to be interpreted as attributable only to variation in child gambling behaviour.

Coastal communities Included in our models is a categorical variable, *Coastal*, set equal to one where the child attended a school within five miles of the Coast. Previous Surveys suggest that children from such schools tend to be more likely to gamble because of the ready availability of arcades of (low prize) gaming machines in seaside resorts. Of course, there are also arcades in inland towns but they are typically targeted at a different market and therefore include machines with stakes high enough such that regulation requires entry to be restricted to adults.

Pocket money At Q33, the Survey asked respondents to report how much money they got in a normal week by selecting from thirteen possible bands, ranging from “nothing” to “over £60”. We took the mid-point of the band selected (for example, £12.50 in the case of the “£10.01 to £15.00” band) as the child’s income (which we term *pocket money* because, for this age group, most income is likely to come from parents). For the unbounded top band, we took pocket money as £65 but added a categorical variable, *top pocket money*, to the model to account for any error this might otherwise introduce to the analysis. Of course, the significance of a given level of income may be different for different children, depending, for example, on whether they are responsible for purchasing their own clothes. But, nevertheless, the variable may still be important in determining whether a child engaged in gambling.

Children’s risky behaviour Q39 asked respondents about their use, in the preceding seven days, of alcohol, cigarettes and a set of other drugs such as solvents and cannabis. As with gambling behaviour itself, the short recall period implies that there is likely to be a strong correlation between answers here and whether children are regular drinkers, smokers or drug takers. The categorical variables included in our models are *alcohol*, *cigarettes* and *drugs*, where the last variable is set equal to one if the child had used one or more drugs (other than alcohol or cigarettes) in the preceding seven days. As with adult populations, there is expected to be correlation between gambling and other problematic behaviour. We also include a categorical variable, *plays free games*, to indicate whether the child played free or practice gambling games on the internet in the preceding seven days.

Principal findings

The large sample size permitted an impressive degree of goodness of fit to be achieved by both the participation in gambling logit model and the ordered logit model that accounts for DSM-IV-MR-J score.⁷⁵ In results from both models, several risk factors with large impacts and strong statistical significance were identified. Consequently, very different predicted probabilities (for gambling and problem gambling) emerged for different bundles of child, school and home characteristics.

⁷⁵ Technical note: pseudo- R^2 is the usual measure of goodness of fit for logit and ordered logit models. In the ‘any gambling’ model, its value was .215 while in the ordered logit model of problem gambling, it was .067 (we also estimated a logit model for a child being recorded as a problem gambler by the DSM-IV-MR-J; the pseudo- R^2 was .165 but we do not report the results because they are so qualitatively similar to those from our ordered logit model). All these values may be considered high relative to what is normally achieved in analysis of cross-section data.

Formal results from the two models are presented in the first two tables in the Technical Annex to this chapter. There, three, two and one asterisks indicate respectively variables that have a statistically significant impact at levels of .01, .05 and .10. For example, if a variable is significant at .05, this means that, given the size of the sample and the patterns in the data, there is a less than 5% chance that there is in fact no relationship between gambling behaviour and that variable. One might then be relatively confident that the impact of the particular risk factor is real in the whole population and not just one generated by the chance behaviour of the group of children included in the survey. If no asterisks are shown, it is conventional to conclude that there is insufficient evidence to support an influence from that particular risk factor.

Both logit and ordered logit models are non-linear and therefore the magnitudes of the coefficients shown for each variable in the tables in the Appendix are not easily interpretable. The impact or *marginal effect* of a variable will differ according to the values taken by all the other variables and must be calculated for a specific set of such values. In the commentary below, marginal effects specific to boys and girls are cited for illustrative purposes and these were calculated for a starting point where continuous variables (such as *GCSE pass rate*) were set at their average values and categorical variables, other than gender, were set equal to zero (for example, since all regional categorical variables were set equal to zero, impact was calculated for the starting-point where the child attended a school in the reference category, London).

Although we do not report the results formally, we estimated similar logit models for a child's use of alcohol, cigarettes and drugs. In the commentary, we note some findings on risk factors for these activities where the similarity or contrast with risk factors for gambling appear to us to be particularly interesting.

This was the case for both gender and age. In the model for seven day gambling prevalence, males (in line with all previous adult and youth prevalence surveys) are shown to have been much more likely to gamble than females: the marginal effect from *boy* was +.148, indicating that, if both had otherwise "average" characteristics, a boy had a probability of seven-day gambling very nearly 15 percentage points higher than a girl. Our results from modelling participation in other 'vices' show that that same gender bias applied in the case of drugs but not in that of alcohol (gender neutral) nor in that of cigarettes (where *boy* was strongly negative in impact).

Age and school year variables had very limited effects though older children in year 10 showed some signs of being more likely to be active in gambling. Impact of age on smoking prevalence was much more pronounced relative to the flat relationship in gambling prevalence.

These results carry over to the DSM-IV-MR-J model. Amongst children who do gamble, boys are much more likely than girls to display problem gambling characteristics; but there is no relationship between problem gambling score and age.

The ethnicity variables reveal no differences between whites and blacks; but there is an important finding regarding Asian adolescents. They are no more likely to gamble

than their white counterparts but an Asian child who does gamble appears to be much more likely to get into trouble: our model shows that, conditional on gambling at all, an Asian child is much more likely to be playing problematically than a white child with similar characteristics. For example, our ordered logit model predicts that, conditional on gambling, a white boy with “average” characteristics has a probability of 0.0173 of being a problem gambler according to the DSM-IV-MR-J screen (i.e. four or more positive responses). For an Asian boy, the figure rises very steeply to .0455. There are obvious implications for health and youth workers charged with care in Asian communities.

We considered the possibility that this conclusion might be spurious because one of the DSM-IV-MR-J criteria relates to lying about gambling. Many Asian children are from families opposed to gambling for religious reasons and therefore feel compelled to lie about their gambling even where their gambling appears benign. Such children may score one point higher on the screen compared with white children whose behaviour is very similar. This could lead to false conclusions being drawn on the relative risks of problem gambling among Asian child gamblers. However, to test whether this might be so, we re-scored DSM-IV-MR-J, excluding the lying question, and re-estimated the ordered logit model. Results were qualitatively similar. Thus the greater risk to Asian child gamblers appears to be a real rather than a spurious finding.

Regional effects on gambling and problem gambling prevalence proved limited. Only in the West and East Midlands and Yorkshire were seven-day prevalence rates different (in each case lower) than in London, controlling for other risk factors. And the probability of a child gambler scoring highly on DSM-IV-MR-J displayed no variation in the regional dimension except that higher risks were observed in the West Midlands. Broadly, then, child gambling and problem gambling patterns are similar in similar types of community in whichever part of Great Britain they are located.

In our modelling we did not use information on whether a child’s school was in an urban or rural area: preliminary experimentation had indicated that this factor played no role in determining child gambling behaviour. This was a different finding from that for cigarettes, where rural schools exhibited statistically significantly elevated smoking prevalence rates.

With one exception, there was no relationship found between gambling behaviour and household type. For example, children from a home with a single mother, an important category, accounting for over 30% of our sample, were no more likely to gamble or show signs of problem gambling than children from two parent households, once allowance had been made for other risk factors included in the model. The variable *single mum* is therefore not an independent risk factor (though, interestingly, it was in the models for alcohol, cigarettes and drugs).

The exception for influence from household type is that children with a *guardian* are more likely to gamble. The marginal effects are large in magnitude, +.125 in the case of a boy. For example, a boy with “average characteristics” has an almost exactly one-in-four chance of having gambled in the preceding seven days; but this predicted probability rises from .250 to .375 if the boy has a guardian rather than two parents in

the household. However, *guardian* is not statistically significant in the ordered logit model for DSM-IV-MR-J score.

To our knowledge, whether a child who is the only child in a household is more likely to gamble or become a problem gambler has not been investigated in previous published evidence on adolescent behaviour. However, coefficient estimates on our variable *sole child* prove in fact to be highly significant in both models. In the seven day participation model, the estimated marginal effect calculated for boys was +.040 and that for girls +.020. Again, these should be judged relative to the predicted probabilities that an “average” boy or girl would have gambled in the preceding seven days (.250 and .102 respectively). Effects here are clearly non-trivial. Moreover, the variable *sole child* is also strong in significance and magnitude in the ordered logit model, implying that sole children who gamble are more likely to exhibit problem gambling behaviour than other children who gamble. For example, for an “average” boy who gambles, being a *sole child* raises the predicted probability of being a problem gambler (four positives or above) from .017 to .026. It is clear that the effect of the presence or absence of other children in the household on child gambling behaviour requires further investigation and appropriate questions should be included in other jurisdictions’ youth prevalence surveys to gather relevant information. Of course, a potential explanation for our findings is that, as in adult populations, lonely children are attracted by the social aspects of gambling and by its potential to counteract boredom.

We also included *sole child* in our modelling of drinking, smoking and drug use. It is interesting that it had no significant impact in any of these areas, one point of contrast between findings on gambling and on other risky behaviours. However, there was no discrepancy in effects from our next variable, *pocket money*, which was always very strongly significant and signed positive. In the case of gambling, an increased level of pocket money not only raises the probability that a child had gambled in the preceding seven days (for example, by a substantial 1.6 percentage points for a mere £1 per week increase for our average boy), but also raises, albeit slowly, the child’s likelihood of being a problem gambler (conditional on being a gambler).

Results on the variables *car* and *tabloid* were insignificant in contributing to the predictive content of the models for child gambling and problem gambling. But parental attitudes mattered. A child reporting an extent to which a parent or parents were approving of child gambling was indeed much more likely to gamble (with a very large marginal effect of +.166 for a boy and +.093 for a girl) and similarly much more likely to present as a problem gambler if he or she gambled. Of course, this estimate, like the others in the model, describes partial correlation and not necessarily causation. With the particular variable, there is a possibility that a child who gambles will, for that reason, claim to have parental approval. Because of this endogeneity issue, we also included in the models the variable *permissive* (towards child drinking and smoking) as a proxy for the degree of strictness in the children’s background. This also had a statistically strong positive impact in both our models though with lower magnitude of effects compared with *approving*.

Parents’ example as well as parents views’ also appear relevant to understanding child gambling behaviour. *Parents bet* and *parents play the Lottery* were each strong

predictors of child participation in gambling (marginal effects, for boys, were +.106 and .035 respectively). However, only parental betting raised the probability of a child gambler being also a problem gambler. Thus, children from households that play the Lottery are more likely to be problem gamblers but only because they are more likely to gamble in the first place. Therefore, parents' Lottery play helps predict whether a child will move from the pool of all children to the pool of child gamblers but not whether he or she will move from the pool of child gamblers to the pool of child problem gamblers.

A similar conclusion was reached with respect to the variable *coastal*. This variable relates to whether a child attended a school within five miles of the coast and is intended to proxy ready access to family entertainment centres with slot machines that can legally be played by minors. Such arcades are far more numerous in seaside resorts than elsewhere. Of course, many coastal towns, such as Southampton, are not seaside resorts and this will tend to dilute the effect of the variable *coastal*. Nevertheless, this variable still attracted a highly statistically significant coefficient estimate in the seven-day gambling model, with marginal effects of +.049 and +.025 for boys and girls respectively. By contrast, it was not statistically significant in the problem gambling score equation. The implication from the two findings is that seaside arcades probably do generate extra numbers of child problem gamblers but only by creating more child gamblers. Perhaps surprisingly, the availability of arcades shows no significant tendency to make those who do gamble more likely to do so with problems. In parallel models for child drinking, smoking and drug-taking, *coastal* had no effect except for raising significantly the likelihood of a child using a drug. It is conceivable therefore that *coastal* proxies more than accessibility to arcades but rather picks up also the effects of wider social problems in, often run-down, seaside towns. On the other hand, it is also possible that arcades, by providing a gathering place for children away from adult control, themselves supply an environment in which drugs habits become more widespread.

Of the other school-level variables, that measuring GCSE performance had the effects we anticipated: children attending higher performing schools were less likely to gamble, and less likely to be problem gamblers if they did so. The free school meals variable, an index of deprivation among the pupils on the roll, had more mixed results. There appeared to be a weak tendency for higher deprivation schools to record lower gambling prevalence rates (for given values of other variables in the model).⁷⁶ On the other hand, in deprived schools, a pupil who gambled had a very significantly larger probability of scoring high on DSM-IV-MR-J. For example, the predicted probability of an "average" boy scoring at least four positives (conditional on his gambling at all) was twice as great if he attended a school where 50% of the pupils received free school meals rather than a school with a 10% take-up of free school meals. This may reflect either the direct influence of the school environment or correlation between the characteristics of a school and (unobserved) characteristics of the children who attend it. In either case, there appears to be a concentration of child problem gambling cases in schools with relatively deprived pupils.

⁷⁶ A possible explanation is that an individual child's propensity to gamble depends not only on how much money he or she has available to spend but also on the amount of money peers in the school have for gambling.

As with adults, gambling is correlated with other risky consumption behaviour. If a child drinks alcohol, smokes cigarettes or takes drugs, there is a significant effect on the probability of gambling. The marginal effects are largest for the case of alcohol. If a child has taken alcohol in the last seven days, the probability that he or she has gambled is elevated by nearly ten percentage points for boys and over four percentage points for girls. This does not imply of course that prevention of under-age drinking would reduce adolescent gambling. The positive correlation shown in the model is likely to arise because subjects have unmeasured characteristics that make them want to engage in both types of risky behaviour.

Some concern has been expressed⁷⁷ that free and practice internet games on internet gambling sites promote child gambling by teaching them to gamble. In a sense, such facilities may provide the opportunity for the internet industry to groom its next generation of customers, though whether this was successful could be tested properly only with longitudinal data. However, such games are undoubtedly popular with the 12-15 age group, 28% of our sample reporting use of them within the preceding seven days. This contrasts strongly with the very low proportion that had played with their own money on the internet in the preceding seven days. Access to 'real' gambling may of course simply be too difficult for the great majority of the age group as registration requires a credit or debit card.

In terms of our models, having played free games in the preceding seven days proved to be the single most important predictor of whether a child had gambled for money in the period and one of the most important predictors of problem gambling if he or she were indeed a gambler. The very high correlations might be interpreted as suggesting that it is not only the thrill of winning and losing money that makes a child gamble: those who are drawn to 'real' gambling are also attracted to 'pretend' gambling. Whatever the reason, the statistical association between gambling, problem gambling and playing free games clearly calls for further research to illuminate the issue of whether regulation should restrict companies from allowing minors access to practice games.⁷⁸ The National Lottery already operates age restrictions for practice games on its website.

Slot machines and National Lottery products

We applied our analysis separately to gambling prevalence in respect of gambling machines and products offered by the National Lottery (which include draw and scratchcard games). The models are inevitably less statistically well determined because, particularly for the Lottery, prevalence rates were much lower. Nevertheless, the empirical exercises (results from which are shown in Tables 3-6 of the Technical Appendix) pointed in some interesting directions.

Many of the findings with respect to the "any gambling model" applied equally to participation in slots and National Lottery products separately. Boys were more likely to be slots players and more likely to play Lottery games (though the gender divide

⁷⁷ See, for example, M. Griffiths and R. Wood (2007)

⁷⁸ One possibility put to us was that the correlation between "any gambling" and *free games* could be explained by the "pretend" games being used by children as the basis for "real" money bets with friends. However, the data reveal that, in fact, *free games* is less highly correlated with betting with friends than with other modes of gambling.

was less pronounced for the latter). The *sole child* was more likely than other children, with similar characteristics, to participate in either of these modes and more likely to display problem gambling traits conditional on participating. In both cases, *free games* was again a predictor of both participation and propensity to score highly on DSM-IV-MR-J.

In the logit model for slot machine play, a child's use of alcohol, cigarettes and drugs all proved to be statistically strong predictors, with alcohol showing the largest marginal effect. However, only smoking helped predict which slots players would score highly on the problem gambling screen. For Lottery playing children, only cigarette and drug use were risk factors for participation and none of these habits helped predict problem gambling score. To some extent, Lottery products appear different from other gambling modes in terms of what drives child participation and behaviour.

Parental attitudes had similar influences as in the "any gambling" models but parental behaviour in gambling had different effects on slot machines and Lottery playing. Having *parents who bet* was associated with a significantly elevated probability of playing slot machines but no impact on the probability that had a child purchased Lottery products. *Parents play the Lottery* was a variable with a statistically significant role in predicting which children bought Lottery products. Again, the pattern of results is consistent with Lottery products being viewed differently by parents and children than other forms of gambling.

Coastal was a significant predictor that a child had played slot machines in the preceding seven days: the marginal effects were +.027 and +.011 for "average" boys and girls respectively (these should be evaluated relative to predicted probabilities of .074 and .027 for "average" children attending schools in non-coastal towns). *Coastal* had no influence on whether a child had purchased a Lottery product, implying that any tendency for arcades to draw children to machine gaming did not affect their attitudes to the Lottery.

Ethnicity variables again yielded interesting results. Asian children were, if anything, less likely to engage in machine gaming than white children; but, amongst child slot players, Asian children were more likely to score highly on the DSM-IV-MR-J screen. This is similar to the result in the "any gambling" model. For lottery products, however, Asian children were both *more* likely to have taken part than white children⁷⁹ and more likely to be problem gamblers if they had done so. Ethnic and cultural differences in gambling behaviour are plainly a matter for further research.

The school environment appeared to play some role in modifying behaviour in respect of use of machine-based gambling and Lottery products. While free school meals data failed to add to the predictive power to the models, a school's GCSE score was significant: a higher level of attainment was associated with a lower propensity to play slots and a lower probability of problem gambling amongst those pupils who did so. For Lottery products, high attainment was also a negative predictor of participation but was irrelevant in accounting for DSM-IV-MR-J score.

⁷⁹ For a white boy with "average" characteristics, probability of participation was .027; but this rises to .045 for an Asian boy with otherwise identical characteristics.

The power of the models

We have identified risk factors, for children in the early years of high school, for participation in gambling activity and for problem gambling (conditional on participation). The models we have estimated are essentially forecasting models which permit policy makers and those working with children to assess how likely a given type of child is to gamble or suffer from problem gambling. But how discriminating are the models? The answer is that they are very discriminating since they give very different predictions for different types of child. To illustrate this, we present predictions of seven-day gambling for six stylised children, three boys and three girls. All live in London (but, it will be recalled, regional differences are revealed by the modelling to be small, and so probabilities would not vary much if we “moved” our six children elsewhere). None of the six stylised children in the table below reflects the most extreme sets of characteristics that could have been presented. Nevertheless, the range of probabilities for seven-day gambling is from .052 to .853 (5.2% to 85.3%). This contrast between predicted probabilities is a firm indication that the design of the survey was successful in including variables that had a significant influence in accounting for the prevalence of gambling among young adolescents. This is even more true for the probability that a child who gambles is a problem gambler (defined by four or more positive responses on DSM-IV-MR-J). The conditional probabilities across the six children range from 0.007 to, in the case of boy B, .369. The latter, very high figure is driven by the child’s poor school environment and that he already uses cigarettes and drugs. Co-morbidity of problem gambling with these other behaviours is, of course, well documented in the literature on adult gambling.

The model for predicting problem gambling score displays such variance in predictions that it would appear likely to be potentially useful for identifying groups of teenagers on whom responsible gambling education initiatives could most effectively be targeted. It illustrates that formal statistical analysis has the potential to extract practically beneficial insights from youth gambling prevalence surveys. Of course, the present data set also collects information on drinking, smoking and illicit drug taking among young adolescents and therefore the exercise offers scope for developing risk assessment models for those behaviours as well as gambling.

Table 1. Predicted probabilities from modelling “any gambling” and “DSM-IV-MR-J score conditional on any gambling”

		Prob (seven -day gambling)	Prob (DSM score of 4 or above) given seven-day gambling
BOY A	school year 10, age 14, white, in care of a guardian, no other child in household, £30 per week pocket money, household has car, no tabloid papers, coastal location, guardians approving but not permissive, guardians play Lottery but do not bet, plays free games and drinks but does not smoke or take drugs, school free meals and GCSE scores at average for England	.853	.120
BOY B	school year 10, age 14, white, two parent family, no other children at home, £20 per week pocket money, no car, tabloid papers, inland location, parents approving and permissive, parents play Lottery and bet, does not play free games, drinks, smokes and takes drugs, school deprived (40% free school meals) and poorly performing (GCSE success rate 25%)	.659	.369
BOY C	school year 8, age 12, white, single mother, not a sole child, £10 per week pocket money, household has car, no tabloid papers, inland location, parent is neither approving nor permissive, parent plays Lottery but does not bet, no free games or drinking or smoking or drugs, school has average deprivation (10.17% free school meals) and good GCSE performance (80%)	.139	.012
GIRL A	similar to BOY C except for gender	.052	.007
GIRL B	school year 10, age 14, white, two parent family, not a sole child, top band for pocket money (over £60 per week), household has car, no tabloid papers, inland location, parent is neither approving nor permissive, parent plays Lottery but does not bet, does not play free games, drink or take drugs but does smoke, school is one of those with zero free school meal take-up and GCSE performance is good (80%)	.118	.019
GIRL C	Similar to girl B but has only £10 per week pocket money	.053	.009

TECHNICAL ANNEX: MODEL RESULTS

Note: in estimating each model, we included categorical variables to account for non-responses to various questions; but we do not report the results on these variables in the tables.

Table 1. Logit model for seven-day gambling prevalence

variable	coefficient	p value	stat sig
boy	1.078	0.000 ***	
Year 10	-0.607	0.466	
age times Year 8	0.056	0.296	
age times Year 10	0.073	0.093 *	
black	0.133	0.453	
Asian	-0.103	0.473	
West Midlands	-0.456	0.000 ***	
East Midlands	-0.321	0.055 *	
South East	-0.087	0.460	
South West	-0.152	0.224	
North East	0.215	0.221	
North West	-0.069	0.587	
Eastern	-0.111	0.425	
Yorkshire	-0.405	0.008 ***	
Wales	-0.526	0.090 *	
Scotland	-0.577	0.060 *	
single mum	0.071	0.346	
single dad	-0.109	0.514	
step parent	-0.100	0.307	
grandparent(s) only	0.254	0.505	
guardian	0.503	0.021 **	
sole child	0.205	0.005 ***	
car	0.055	0.633	
tabloid	-0.007	0.956	
parents bet	0.507	0.000 ***	
parents play the Lottery	0.200	0.002 ***	
approving	0.761	0.000 ***	
permissive	0.187	0.021 **	
percent free school meals	-0.007	0.108	
GCSE success rate	-0.005	0.076 *	
coastal	0.246	0.001 ***	
pocket money	0.016	0.000 ***	
pocket money maximum	0.217	0.382	
plays free games	1.317	0.000 ***	
alcohol	0.599	0.000 ***	
cigarettes	0.290	0.005 ***	
drugs	0.277	0.002 ***	
constant	-3.606	0.000	
number of observations	8,958	pseudo-R ² = .216	

Table 2. Ordered logit model for DSM-IV-MR-J score (for those who had gambled in the preceding seven days)

variable	coefficient	p value	stat sig
boy	0.488	0.000	***
Year 10	0.202	0.862	
age times Year 8	0.019	0.784	
age times Year 10	-0.012	0.857	
black	0.261	0.343	
Asian	0.994	0.000	***
West Midlands	0.489	0.025	**
East Midlands	-0.006	0.984	
South East	0.121	0.535	
South West	0.233	0.250	
North East	0.206	0.443	
North West	0.101	0.619	
Eastern	0.223	0.327	
Yorkshire	0.052	0.835	
Wales	0.463	0.342	
Scotland	0.554	0.250	
single mum	-0.129	0.285	
single dad	-0.241	0.314	
step parent	0.129	0.385	
grandparent(s) only	0.131	0.788	
guardian	0.329	0.256	
sole child	0.399	0.000	***
car	-0.258	0.151	
tabloid	-0.036	0.881	
parents bet	0.392	0.001	***
parents play the Lottery	-0.053	0.629	
approving	0.530	0.000	***
permissive	0.515	0.000	***
percent free school meals	0.018	0.010	**
GCSE success rate	-0.008	0.051	*
coastal	0.165	0.165	
pocket money	0.012	0.001	***
pocket money maximum	0.168	0.581	
plays free games	0.669	0.000	***
alcohol	0.051	0.645	
cigarettes	0.404	0.006	***
drugs	0.323	0.012	**
cut 1	1.993		
cut 2	2.998		
cut 3	3.774		
cut 4	4.348		
cut 5	4.961		
cut 6	5.473		
cut 7	6.169		
cut 8	7.418		
number of observations 1,834 pseudo-R ² =.067			

Table 3. Logit model for seven-day prevalence of machine gaming

variable	coefficient	p value	stat sig
boy	0.921	0.000	***
Year 10	-0.108	0.910	
age times Year 8	0.052	0.408	
age times Year 10	0.021	0.664	
black	-0.029	0.907	
Asian	-0.325	0.150	
West Midlands	-0.506	0.008	***
East Midlands	-0.082	0.712	
South East	0.014	0.934	
South West	0.089	0.591	
North East	-0.241	0.313	
North West	-0.033	0.849	
Eastern	0.115	0.539	
Yorkshire	-0.211	0.312	
Wales	-0.321	0.415	
Scotland	-0.740	0.061	*
single mum	0.086	0.394	
single dad	0.079	0.700	
step parent	-0.116	0.362	
grandparent(s) only	0.150	0.756	
guardian	-0.230	0.446	
sole child	0.187	0.056	*
car	-0.075	0.615	
tabloid	0.310	0.131	
parents bet	0.439	0.000	***
parents play the Lottery	0.153	0.096	*
approving	1.011	0.000	***
permissive	-0.075	0.477	
percent free school meals	0.006	0.316	
GCSE success rate	-0.006	0.070	*
coastal	0.337	0.001	***
pocket money	0.021	0.000	***
pocket money maximum	-0.088	0.753	
plays free games	1.343	0.000	***
alcohol	0.555	0.000	***
cigarettes	0.392	0.002	***
drugs	0.391	0.000	***
constant	-5.009	0.000	

number of observations 8,958 pseudo-R²=..224

Table 4. Ordered logit model for DSM-IV-MR-J score (for those who had gambled on machines in the preceding seven days)

variable	coefficient	p value	stat sig
boy	0.520	0.001	***
Year 10	0.254	0.861	
age times Year 8	-0.089	0.357	
age times Year 10	-0.104	0.161	
black	0.220	0.596	
Asian	0.819	0.035	**
West Midlands	0.445	0.188	
East Midlands	-0.081	0.842	
South East	0.334	0.251	
South West	0.185	0.529	
North East	0.319	0.432	
North West	0.001	0.998	
Eastern	0.192	0.567	
Yorkshire	-0.233	0.522	
Wales	1.961	0.008	***
Scotland	2.017	0.006	***
single mum	0.154	0.365	
single dad	0.078	0.807	
step parent	-0.019	0.927	
grandparent(s) only	0.480	0.478	
guardian	0.191	0.713	
sole child	0.236	0.150	
car	-0.157	0.545	
tabloid	-0.026	0.947	
parents bet	0.382	0.026	**
parents play the Lottery	0.131	0.433	
approving	0.213	0.163	
permissive	0.561	0.001	***
percent free school meals	0.015	0.153	
GCSE success rate	-0.005	0.447	
coastal	0.219	0.191	
pocket money	0.010	0.038	**
pocket money maximum	0.956	0.020	**
plays free games	0.454	0.005	***
alcohol	0.122	0.452	
cigarettes	0.548	0.006	***
drugs	0.196	0.259	
cut 1	0.713		
cut 2	1.682		
cut 3	2.517		
cut 4	3.141		
cut 5	3.742		
cut 6	4.231		
cut 7	5.025		
cut 8	5.990		

number of observations 821 pseudo-R²=.060

Table 5. Logit model for seven-day prevalence of purchase of UK National Lottery products

variable	coefficient	p value	stat sig
boy	0.617	0.000	***
Year 10	-1.138	0.388	
age times Year 8	0.024	0.764	
age times Year 10	0.080	0.262	
black	0.337	0.245	
Asian	0.527	0.015	**
West Midlands	-0.196	0.398	
East Midlands	-0.509	0.115	
South East	0.358	0.081	*
South West	-0.031	0.889	
North East	0.440	0.105	
North West	-0.095	0.678	
Eastern	-0.144	0.575	
Yorkshire	0.291	0.237	
Wales	-0.049	0.930	
Scotland	-0.408	0.471	
single mum	-0.159	0.232	
single dad	-0.313	0.266	
step parent	0.025	0.882	
grandparent(s) only	0.637	0.202	
guardian	1.048	0.000	***
sole child	0.333	0.007	***
car	-0.093	0.623	
tabloid	0.635	0.038	**
parents bet	0.076	0.599	
parents play the Lottery	0.422	0.001	***
approving	0.809	0.000	***
permissive	0.283	0.031	**
percent free school meals	0.006	0.385	
GCSE success rate	-0.009	0.042	**
coastal	0.060	0.650	
pocket money	0.010	0.012	**
pocket money maximum	0.740	0.020	**
plays free games	1.252	0.000	***
alcohol	0.078	0.548	
cigarettes	0.598	0.000	***
drugs	0.382	0.005	***
constant	-5.248	0.000	***

number of observations 8,958 pseudo-R²= .180

Table 6. Ordered logit model for DSM-IV-MR-J score (for those who had purchased UK National Lottery products in the preceding seven days)

variable	coefficient	p value	stat sig
boy	0.630	0.003	***
Year 10	5.698	0.096	*
age times Year 8	0.300	0.233	
age times Year 10	-0.150	0.097	*
black	-0.930	0.108	
Asian	0.936	0.016	**
West Midlands	0.733	0.100	*
East Midlands	-1.318	0.066	*
South East	0.241	0.554	
South West	0.404	0.380	
North East	0.182	0.723	
North West	0.640	0.145	
Eastern	0.492	0.332	
Yorkshire	0.175	0.692	
Wales	-0.426	0.698	
Scotland	0.004	0.997	
single mum	0.045	0.850	
single dad	-0.184	0.703	
step parent	0.110	0.696	
grandparent(s) only	0.260	0.731	
guardian	0.337	0.430	
sole child	0.441	0.054	
car	-0.204	0.548	
tabloid	0.480	0.405	
parents bet	0.263	0.301	
parents play the Lottery	0.271	0.252	
approving	0.289	0.160	
permissive	0.528	0.020	**
percent free school meals	0.005	0.722	
GCSE success rate	0.549	0.564	
coastal	-0.168	0.496	
pocket money	0.019	0.005	***
pocket money maximum	-0.339	0.502	
plays free games	0.959	0.000	***
alcohol	0.116	0.617	
cigarettes	0.207	0.434	
drugs	0.178	0.475	
cut 1	5.597		
cut 2	6.775		
cut 3	7.557		
cut 4	8.103		
cut 5	8.861		
cut 6	9.223		
cut 7	10.051		
cut 8	11.000		
number of observations	431	pseudo-R ² =.086	

