GAMBLING AND PROBLEM GAMBLING AMONG ADOLESCENTS IN BRITAIN

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Report today on results from large-scale youth gambling prevalence surveys in Britain, one of few jurisdictions to have carried out such surveys in the ‘internet’ era when so much has changed in both the gambling landscape and youth culture.

But perhaps one should ask first whether gambling by young people is in fact a cause for concern- is it not a source of fun and education in risk management?

Those who worry about youth gambling usually cite statistics which illustrate that almost all adult problem gamblers report early initiation.

However, there is presently no evidence of causation: it is at least as plausible that correlation results from behaviour in both adulthood and youth being driven by an unobserved and persisting personality trait, such as love of risk.

There can be no certainty that strong interventions amongst young people will result in long-term reduction of adult problem gambling rates.

Eg a Canadian study shows that high cigarette prices in the 1990s induced a sharp drop in teenage smoking participation but that that cohort had “normal” smoking prevalence in their twenties.
BUT….

- Adolescents may suffer short-term harm from gambling

- Young people may run into particular problems because they find it harder than adults to control their gambling

- Indeed a survey commissioned by the (British) Gambling Commission reported very consistent findings across the world that PG rates among teenagers are 3 times as high as in adult populations

- This proved to be the case with our 11-15 year olds sample where the PG rate was 1.9% compared with an estimate in the preceding official adult prevalence survey of 0.6%. It was very much higher than this in some sub-groups such as Asians

- PG may disturb, eg, family relationships, concentration and school work

- The problem is non-trivial and health and education professionals should be alert to problem gambling risk factors
BACKGROUND: AGE RESTRICTIONS IN BRITAIN

• Minimum age for National Lottery products and football pools is 16

• No age restriction on low stakes/ prizes slot machines

• Since 2007, higher stakes slots have to be in adult-only environments such as bars

• Other commercial gambling such as betting and casino gaming is limited to those 18 or over
The survey of 11-15 year olds

- **8,958 children** from **201 different schools** surveyed by IPSOS Mori, funded by the National Lottery Commission

- Analysis was conducted by the Salford research team: David Forrest, Ian McHale & Jonathan Parke

- In each school, one class (average size 22) was sampled from School Year 8 and one from School Year 10

- This means that the subjects were mostly **aged 12-15** (though there were some eleven year olds)
WHAT THE SURVEY SOUGHT TO FIND OUT

HOW MANY CHILDREN GAMBLE?

We measured this by asking them about whether they had gambled with their own money on each of several modes of gambling in the preceding seven days.

HOW MANY CHILDREN ARE PROBLEM OR PATHOLOGICAL GAMBLERS?

Those who had gambled were asked to complete a diagnostic screen, DSM-IV-MR-J, a ‘junior’ version of the standard screen applied in clinical assessment of adults; it is used in adolescent gambling prevalence surveys worldwide.
THE SCREEN

• 9 questions covering:
  - preoccupation
  - tolerance
  - withdrawal
  - loss of control
  - escape
  - chasing
  - lying
  - illegal acts
  - risked relationships
• These are the same criteria as in the adult DSM-IV screen

• But a few of the questions are adapted for teenagers, eg ‘illegal acts’ becomes: taken money without permission from family members, dinner money or anywhere else

• Four positive answers (eg answering ‘sometimes’ or ‘often’) indicates a diagnosis of PG

• Our underlying statistical model identified factors that tended to push up the probabilities of higher scores on the DSM junior screen
THE RAW DATA: PREVALENCE OF GAMBLING (20.5%)

- 28.2% of boys and 12.7% of girls had gambled in the previous seven days

- This represents a continuation of the consistent downward trend since the first survey in 1995-6

- The most popular mode was slot machines

- Gambling via the internet was very uncommon (<1% of respondents), reflecting no doubt the necessity of using a credit card

- Playing free or practice gambling on the internet was, however, more widespread than gambling itself (28%)

- Some sub-groups exhibited much higher or lower rates of seven-day gambling, eg smokers (38.5%) and Asians (13.3%)
OLDER (16-17) TEENAGERS

- Three adult prevalence surveys in 1999, 2007 and 2010 picked up 220-250 sixteen and seventeen year olds each time.

- These are relatively small sample sizes but trends are clearly similar to those among younger teenagers.

- Past week gambling went from 27.2% in 1999, to 19.4% in 2007 and 13.5% in 2010, i.e. the trend was downwards.

- This was driven mainly by falls in participation in National Lottery draw games and scratchcards but there was also a sharp fall for slots between 2007 and 2010.

- In 2010, only one respondent had gambled online in the preceding seven days.
THE RAW DATA: PREVALENCE OF PROBLEM GAMBLING (1.9%)

- 3.0% of 11-15 year old boys and 0.9% of 11-15 year old girls recorded four or more positives on the screen & were therefore ‘problem gamblers’

- 8.7% of boys and 5.6% of girls who had gambled in the preceding seven days were ‘problem gamblers’

- Some sub-groups had significantly higher PG prevalence rates, eg smokers (6.5%) and Asians (3.0%)

- The much smaller sample of 16-17 year olds in the 2010 adult prevalence survey had a 0.99% prevalence of PG
statistical modelling of the 11-15 year olds survey

- we produced a brief analysis included in the official report from IPSOS Mori

- Then we initiated a series of academic papers based on employment of the data set

- Our first completed paper was Teenage Kicks, which reports on participation in drinking, smoking and gambling

- today the presentation emphasises findings from our second ‘follow up’ paper, which focuses on structural determinants of probability of gambling and risk of problem gambling
THREE “PROBABILITY” MODELS

• our main equation models the probability that a subject is a problem gambler

  two subsidiary equations then model *how this prediction emerges*:

  *first* we model probability of gambling

  *second* we model probability of being a problem gambler given the child gambles at all
PREDICTORS: DEMOGRAPHIC

-------gender (female)

-------age (<12, 13, 14, >14)

-------ethnicity (black/ Chinese/ Asian)

-------region of residence
PREDICTORS: HOME CHARACTERISTICS

-----household type (two parents, lone mother, lone father, guardian, etc)

-----siblings (whether there is another child living in the home)

-----social class (proxied by which newspapers are read & whether the household has a car)

-----parental attitudes as reported by the child (approving and permissive refer to whether parent(s) think it okay for a child at that age to gamble/ drink and smoke respectively)

-----parental gambling (variables for whether parents play the Lottery/ bet at the bookmaker)
PREDICTORS: SCHOOL VARIABLES

-----per cent with free school meals is a proxy for the level of deprivation of a school

-----GCSE success rate (pass rate in national examinations taken at age 15-16) measures educational performance of the school

-----school truancy is the proportion of the other pupils in the school in the sample who self-reported recent absence without permission

-----coastal means that the school is within 5 miles (8km) of the sea (many arcades with gaming machines are located in seaside resorts)
FURTHER PREDICTORS

POCKET MONEY in pounds per week (ranged from 0 to over £60)

CHILD’S OTHER BEHAVIOURS IN PRECEDING SEVEN DAYS

-----alcohol (26% of sample)
-----cigarettes (9%)
-----free/practice Internet gambling games (28%): facebook poker, bebo games, gambling-specific websites
PREDICTIVE POWER

• perhaps the most interesting aspect of the results is the high goodness-of-fit achieved compared with any study of problem gambling amongst adults

• secondary analysis commissioned after the 2007 British (adult) Gambling Prevalence Survey presented the incidence of PG as almost random, with male, smoker & drinker the only important risk factors identified

• by contrast, we identify several very strong risk factors

• this is encouraging because it implies that targeting of interventions is much more feasible when addressing PG amongst teenagers: teenage behaviour is more ‘predictable’
PRESENTATION OF RESULTS

• results presented are impacts for a baseline subject

a 12 year old white boy living with two parents & at least one other child, attending a school away from the coast in SE England and with average GCSE performance, truancy and free school meals rates

he has average pocket money (£13.85 per week); neither of his parents bet or play the lottery; they disapprove of drinking and smoking and he does neither; nor does he play free gambling games; there is a car at home and no tabloid newspapers
this baseline subject has these probabilities:

pr (PG)  0.19%
pr (G)   16.3%
pr (PG if G)  1.1%

note that these are very low risks compared with the population because most variables in the model raise expected probabilities (ie the baseline subject does not have many unfavourable characteristics)
### gender

| baseline | pr(PG) | pr (G) | pr(PG|G) |
|----------|--------|--------|----------|
| 0.19%    | -0.15%*** | -10.04%*** | -0.61%*** |
| 16.28%   |        |        |          |
| 1.14%    |        |        |          |

just as in the adult population, gambling is a very male-oriented activity and problem gambling a very male-oriented disorder
| age        | pr(PG)    | pr (G)    | pr(PG|G)   |
|------------|-----------|-----------|-----------|
| baseline   | 0.19%***  | 16.28%    | 1.14%     |
| under 12   | 0.21%***  | 7.99%*    | 4.99%***  |
| aged 13    | 0.00%     | 1.36%     | -0.22%    |
| aged 14    | -0.06%    | -3.27***  | -0.53%*   |
| aged over 14 | -0.07%    | -3.16%**  | -0.44%    |

the youngest children have the highest propensity to be gamblers and are at particular risk of being problem gamblers. Gambling participation falls between school year 8 and year 10. Age of initiation for gambling is low and this suggests that early inclusion of gambling in health education programmes is desirable.
ethnicity

<table>
<thead>
<tr>
<th></th>
<th>baseline 0.19%</th>
<th>16.28%</th>
<th>1.14%</th>
</tr>
</thead>
<tbody>
<tr>
<td>pr(PG)</td>
<td>0.19%</td>
<td>2.93%</td>
<td>0.54%</td>
</tr>
<tr>
<td>pr(G)</td>
<td></td>
<td>-1.60%</td>
<td>5.94%</td>
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<tr>
<td>pr(PG</td>
<td>G)</td>
<td></td>
<td>-1.78%</td>
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The sub-sample of Asians is adequate in size (487). Asians are no more likely to gamble than whites but, if they do, they are very much more likely to experience problems. Net effect on pr (PG) is significant and large. Estimate falls only slightly if parental attitudes are dropped from the model. Positive impact of ‘Asian’ on PG is robust to discounting the ‘lying about gambling’ question from the screen. Youth PG appears a serious issue in the Asian community. A recent paper with Heather Wardle shows just the same pattern among Asian men AND women.
family

<table>
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| pr(PG)   | pr (G) | pr(PG|G) |
|----------|--------|---------|
| guardian | .0075*** | .0820*** | .0056 |

All other dummy variables indicating other than living with two natural parents were insignificant, even when parental attitudes were dropped from the model.

Many children with guardians are from troubled backgrounds but they are more likely to be PGs only because more of them gamble: less monitoring is a possible explanation of why they are more likely to gamble.
this is another novel finding. Lone children were no more likely than other children to drink or smoke. One possibility was that they seek company in gambling but further analysis revealed that the result was the same when separate equations were estimated for social and solitary modes of gambling- it is not just that they went to arcades more than other children. This appears a potentially worthwhile issue to be explored in more micro research.
‘pocket money’

<table>
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</table>

| pr(PG)       | pr (G) | pr(PG|G) |
|--------------|--------|--------|
| pocket money | 0.11%**| 2.93%***| 0.72%***|

(impact of changing from £13.85 to £25 per week)

_in our other paper, the strong positive impact of child income on propensities to drink and smoke made this one of the few measured variables that had similar effects across all three behaviours._
social class proxies

<table>
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<th>16.28%</th>
<th>1.14%</th>
</tr>
</thead>
<tbody>
<tr>
<td>pr(PG)</td>
<td>pr(G)</td>
<td>pr(PG</td>
<td>G)</td>
</tr>
<tr>
<td>no car</td>
<td>0.25%*</td>
<td>-1.02%</td>
<td>0.84%</td>
</tr>
<tr>
<td>tabloid newspapers</td>
<td>-0.04%</td>
<td>-0.34%</td>
<td>-0.48%</td>
</tr>
</tbody>
</table>

these variables performed very weakly. However, in our work on smoking, each was a strong positive predictor within a similarly specified equation, so we conclude that the variables do capture potentially relevant information. But child gambling, unlike smoking, does not appear to be particularly driven by the class background of the individual.
**parental attitudes/ example**

|                      | pr(PG) | pr (G) | pr(PG|G) |
|----------------------|--------|--------|---------|
| approving (gambling) | 0.68%*** | 12.40%*** | 1.62%*** |
| permissive           | 0.27%*** | 2.62%**  | 0.98%**  |
| parents bet          | 0.31%*** | 8.06%*** | 1.30%**  |
| parents play lottery | 0.00%   | 2.59*** | -0.36%   |

*relaxed parenting* is associated with considerably elevated risk of PG - however, omission of the parental attitudes variables does not make any substantive difference to estimates of impacts of other variables.

*if parent(s) use bookmakers*, this raises probability of gambling and susceptibility to problem gambling, also very considerably.

*parent(s) playing the lottery* raises the probability of the child gambling; but those additional gamblers do not contribute to the pool of problem gamblers- confirming the consensus that the lottery is a relatively benign mode of gambling.
the school

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<th>1.14%</th>
</tr>
</thead>
<tbody>
<tr>
<td>gcse pass rate</td>
<td>-0.05%*</td>
<td>-.1.52%**</td>
<td>0.28%*</td>
</tr>
<tr>
<td>free school meals %</td>
<td>0.50%</td>
<td>-1.12%*</td>
<td>0.31%</td>
</tr>
<tr>
<td>truancy</td>
<td>0.00%</td>
<td>-0.70%</td>
<td>-0.01%</td>
</tr>
</tbody>
</table>

there is some modest moderation of risks for children in high achieving schools but school environment generally seems to exert relatively little influence

note that this does not imply that schools all face similar problems, eg if a school is an area that has many parents who bet, it will have more PG; but no additional influence comes from the school environment itself
|                | pr(PG) | pr (G) | pr(PG|G) |
|----------------|--------|--------|---------|
| baseline       | 0.19%  | 16.28% | 1.14%   |
| coastal        | 0.00%  | 4.28%*** | -0.04% |

there has been considerable concern expressed about potential risks to local children from (legal) access to seaside slot machine arcades. We find that children in coastal towns are indeed significantly more likely to be gamblers. We found the variable has no effect on drinking & smoking, implying that the variable is probably not just proxying some unobserved characteristic of often run-down seaside towns but rather captures effects of easy access. Probably the impact is underestimated here as not all coastal towns are resorts.

however, marginal gamblers induced to participation by ease of access do not appear prone to PG and more children gambling does not carry through to more children being PGs. Panic about arcades does not appear justified. Hard core gamblers play and get into trouble even without easy access.
drinking and smoking

|       | pr(PG) | pr(G)  | pr(PG|G)  |
|-------|--------|--------|----------|
| drinker | -0.01% | 10.54%*** | -0.40%    |
| smoker  | 0.40%*** | 6.17%*** | 2.16%*** |

as in adult populations, drinking and smoking are strong predictors of engagement in gambling

smoking in particular is a marker for strongly elevated risk of problem gambling (probability is trebled)

we do not have information on level of drinking- in adult comorbidity studies, a majority of those diagnosed as problem gamblers also test positive for drinking disorders
other findings

• it is unsurprising that we also found that **playing free games on the internet predicts increased chance of engagement in gambling for money**

• it also increases the probability of problem gambling but here the correlation is much stronger for practice games on gambling websites than for free games on social network sites

• insufficient evidence here to support regulatory prohibition of free games

• variables omitted from the model included measures of the size of the jackpot available on UK Lotto/ EuroMillions in the week before the school was surveyed

• these failed to have any predictive power in accounting for seven day engagement in gambling- children did not appear to be stimulated to gamble by extra publicity triggered by high jackpots
general thoughts

• Generally, home characteristics dominated school characteristics in accounting for which children experience problem gambling

• But gambling education is organised at school level and so it is desirable to develop a model to predict risks using only known school-level variables

• With individual characteristics omitted, free school meals (⁺) and school academic standards (⁻) become highly significant predictors of risk of problem gambling

• This suggests further modelling designed to identify which schools should be targeted with preventive measures against problem gambling
<table>
<thead>
<tr>
<th>GIRL</th>
<th>Description</th>
<th>Pr(G)</th>
<th>Pr(PG)</th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>school year 10, age 14, white, two parent family, other children at home, <strong>top band for pocket money</strong> (over £60 per week), household has car, no tabloid papers, inland location, parents are neither approving nor permissive, parent(s) play Lottery but do not bet, she 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%)</td>
<td>11.8%</td>
<td>1.9%</td>
</tr>
<tr>
<td>B</td>
<td>Similar to girl A but has <strong>only £10 per week pocket money</strong></td>
<td>5.3%</td>
<td>0.9%</td>
</tr>
</tbody>
</table>