GAMBLING AND PROBLEM GAMBLING AMONG YOUNG ADULTS
insights from a longitudinal study of parents and children

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we were commissioned by GambleAware to analyse data from the **Avon Longitudinal Study of Parents and Children** (ALSPAC)

ALSPAC recruited several thousand pregnant women in the Bristol region in 1991-2

the intention was to track the health and lifestyle of parents and their children during pregnancy and then into the indefinite future by means of surveys and clinical examinations; and the Study is still very much in progress

according to *Nature*, more than 1,500 scientific papers had been published by 2012, many very influential in changing health policy
• gambling has featured four times in the data set

• at child age 6, each parent was asked to complete a questionnaire which asked about their engagement in gambling and included a version of the SOGS screen for problem gambling

• GambleAware paid for the inclusion of a gambling module which sought similar information from the young people themselves at ages 17 years and 9 months (median), 20 and 25; in this case, PGSI was the screen employed

• we had available the survey results of the first two waves funded by GambleAware as well as the parents’ results from child age 6; also various lifestyle data collected during the intervening years

• from linked data, we also had information on the child’s performance in national school tests (SATS) at about age 15
OUR AGENDA

• we focused on determinants of engagement in gambling and indication of problem gambling at age 20 (but the results proved qualitatively similar when we estimated the same models for the age 17y9m sample)

• we explored in particular links between gambling participation/ PGSI score and parental education, school exam performance, parental gambling & problem gambling at child age 6, and other aspects of parental lifestyle during childhood

• finally, we looked at changes in problem gambling classification between ages 17y9m and 20 (at 17y9m a young person is on the cusp of being able legally to participate in commercial gambling, though lottery products can be purchased from age 16)
GAMBLING AND PROBLEM GAMBLING AT AGE 20

• we analysed two samples

• the first included all observations where there was complete information from the young person at 20 and the mother at child age 6 (n=2,125)

• the second included all observations where there was complete information from the young person at 20 and the father at child age 6 (n=1,064)

• logistic regression was employed, separately for young men and young women, with regular gambler and MPPG (classified as either ‘moderate level of problems’ or ‘problem gambler’ according to PGSI, where 3-7 is MP and 8+ is PG)
• at age 20, **11.2% of the sample were regular gamblers**, defined by weekly-or-more play in at least one of 16 named activities

• **lotto, scratchcards and online betting were the most common regular activities** (card games, horse betting and casino games also attracted significant participation but only at the ‘in last year’ level of frequency)

• the pattern of PGSI scores was similar as in national prevalence survey, **3.9% of the whole sample were MPPG**, nearly **25% of regular gamblers were MPPG** (‘loss chasing’ was the most frequently endorsed PGSI item)

<table>
<thead>
<tr>
<th></th>
<th>males</th>
<th>females</th>
</tr>
</thead>
<tbody>
<tr>
<td>not applicable</td>
<td>270 (31.5%)</td>
<td>536 (42.2%)</td>
</tr>
<tr>
<td>non-problem gambling (PGSI=0)</td>
<td>372 (43.5%)</td>
<td>581 (45.8%)</td>
</tr>
<tr>
<td>low level of problems (PGSI=1-2)</td>
<td>152 (17.8%)</td>
<td>131 (10.3%)</td>
</tr>
<tr>
<td>moderate level of problems (PGSI=3-7)</td>
<td>47 (5.5%)</td>
<td>20 (1.6%)</td>
</tr>
<tr>
<td>problem gambling (PGSI=8 or more)</td>
<td>15 (1.7%)</td>
<td>1 (0.08%)</td>
</tr>
</tbody>
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REGRESSION RESULTS: COMORBIDITIES

• for both genders, heavy smokers were much more likely to be regular gamblers; but tobacco use was not a significant predictor of MPPG

• among young men, both regular gambling and MPPG were strongly correlated with risky drinking, as captured by score on the AUDIT screen

• but this was not the case in the sample of young women

• young men who were already fathers were disproportionately likely to be regular gamblers, odds-ratio 3.6, (but ‘young mother’ had no such effect)

• a model where regular gambler was defined to exclude lotto play yielded similar results
REGRESSION RESULTS: SCHOOL SCORES AT 15

• in the same model, we included national test scores in maths and English; these tests had been taken in mid-adolescence (age 14-15)

• for males, maths score was a very strong predictor of regular gambling at 20 (p=.004) and English score a very strong negative predictor of regular gambling at 20 (p<.001)

• for females, the same pattern was found though less precisely defined (p-values around .05)

• results were not sensitive to whether lotto was counted as gambling and analysis of individual activities did not indicate a distinction between skill-based games and games of pure chance
• in the male models for MPPG, maths and English scores were weak positive/negative predictors (p-values around .10)

• but, while the signs were the same in the female equations, test scores were not close to statistical significance

• the results for participation are very consistent with those in Tuomo Kainulainen’s presentation earlier in the conference

• for that paper, we linked online accounts of the Finnish horse betting monopolist with IQ scores from tests that had been administered to males when they began their military service

• maths IQ was a strong positive predictor of horse betting and verbal IQ a strong negative predictor of horse betting

• established literature has investigated links between gambling and scholastic aptitude but these two pieces of research suggest that performance should be disaggregated by subject….those with a facility for numbers appear to be drawn to gambling; but those with a preference for words seem not to be so keen on gambling as a way to use their leisure time
REGRESSION RESULTS: PARENTAL EDUCATION

- among males, father’s education had limited influence on probability of regular gambler; however, if the mother had a high level of education, the son was much less likely to be a regular gambler.

- among females, mother’s education had limited influence on probability of regular gambler; however, if the father had a high level of education, the daughter was much less likely to be a regular gambler.

- the same cross-gender influence was found in the MPPG equations.

- the only exception to the cross-gender pattern was that a daughter’s probability of both regular gambling and MPPG was elevated where her mother had no qualifications at all....but this was only 2% of the sample.
REGRESSION RESULTS: PARENTAL GAMBLING

• among males, father’s gambling engagement at child age 6 was not a predictor of child regular gambling at 20; but his SOGS score was

• among females, father’s gambling had no effect on probability of regular gambler at 20 unless parental education was deleted from the model

• the number of a mother’s gambling activities at child age 6 was a strong predictor of her son being a regular gambler at 20 (eg two activities doubled the predicted probability)

• no link was found between female regular gambling at 20 and mothers’ gambling at child age 6

• any significant correlation between regular gambler and parental gambling at child age 6 worked cross-gender
REGRESSION RESULTS: PARENTAL PROBLEM GAMBLING

• mother’s SOGS score at child age 6 was a strong predictor (p=.007) of her son being MPPG at age 20, with large effect size….this remained true when other indicators of parental lifestyle were added to the model

• the effect of father’s SOGS score on daughter’s probability of MPPG was also significant both statistically and in terms of effect size

• we were unable to identify any same-gender linkages between young persons’ propensity to MPPG and parental problem gambling at child age 6

• once again effects are working cross-gender
IMPLICATIONS

1. Transmission of PG between generations has limited effects on the size of the MPPG pool at age 20. Father’s PG raises risk for daughters but this is adding to what is only a low baseline risk for young women. Mother’s PG raises risk for sons but not many mothers are PGs.

caveat: we observe parental PG indicators only once during childhood

2. We had similar results from the 17y9m sample. Earlier Emond, Doerner & Griffiths reported weak correlation between PG and maternal gambling at 6 and no correlation with paternal gambling. We replicated their result with pooled data. But merging male and female observations and using only a dummy variable to capture the effects of gender hides findings because effects of covariates are constrained to be the same for men and women. This applies to several findings in our Report and underlines that male and female gambling behaviour in the problem gambling field should be analysed separately. With such differences in prevalence-rates between genders, it is very plausible that etiology differs between genders.
REGRESSION RESULTS: PARENTAL LIFESTYLE

- generally, non-gambling covariates representing parental (specifically mother’s) lifestyle were more important for predicting female risk of MPPG than parental gambling covariates

- risk factors for young women included mother a smoker, mother’s frequency of eating fried food, mother’s Body Mass Index

- however, only mother’s SOGS score affected risk for their sons

- sons’ risk of MPPG is not affected by other parental variables (except education level)

- for females, the parental household’s tolerance of risky and stigmatised activities, as captured by the mother’s lifestyle indicators, appears to be an important factor in MPPG risk at 20
WHAT HAPPENS BETWEEN 17y9m AND 20?

• we constructed a large matrix to show changes in status (regular gambler or not, PGSI classification) for those who participated in both samples

• retention in the sample was stronger among those more engaged in gambling at 17y9m

• of those who were MP (PGSI 3 to 7) or PG (PGSI 7+) at 17y9m, two-thirds moved to a lower classification at 20 and one-quarter had PGSI=0 at age 20

• most ‘low risk’ also ‘improved’ (to PGSI=0)

• this confirms findings in short-term longitudinal studies in other countries (with much smaller samples) that there is a tendency to self-recovery among young problem gamblers (which is not to say that much harm has not been generated in the meantime)
even though most MPPGs at 17y9m were no longer so at 20, the prevalence-rate of MPPG more than tripled between the two surveys

this implies a high incidence of MPPG in the two years following first exposure to legal commercial gambling

the majority of new cases had shown no warning sign at 17y9m: not regular gamblers and PGSI=0

our Report proposes special measures to protect those in the age range 18 to 20, who are at relatively high risk at an age critical for life prospects

several jurisdictions place restrictions on new young drivers- might regulators not evaluate similar measures for new gamblers?

operators might adopt lower thresholds for young customers when determining criteria for RG interventions
thank-you for listening......

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