Design protocol for NatCen/LSE experiments on the measurement of gambling behaviour

In July 2024, The Gambling Commission (the Commission) published the first Gambling Survey for Great Britain (GSGB) annual report. The GSGB is the first bespoke survey of gambling behaviours in Great Britain since 2010 and establishes a new national baseline for understanding gambling and its consequences. The methodological design of the GSGB was updated to reflect broader trends in social surveys, moving away from interviewer-led data collection towards a push-to-web design.

The GSGB methodology was independently reviewed by Professor Patrick Sturgis who found the development process for the new GSGB to be exemplary in all respects. However, Professor Sturgis also noted that "*There are some issues that will require further consideration following the launch of the new design, to ensure public and stakeholder confidence in the quality and robustness of the statistics.*" He made seven recommendations for further methodological inquiry, ordered in terms of importance. The first three recommendations focus on understanding how the updated GSGB methodology may impact both the propensity of different people to take part in the survey and to report certain behaviours compared with the preceding studies.

The Commission's aim for this research is to deliver experimental work assessing the first three of Professor Sturgis's recommendations to better understand:

a) The relationship between survey topics and propensity of people who gamble to respond;
b) Understand the role of social desirability as a driver of differences in estimates of gambling behaviours between in-person and self-completion interviews;
c) Undertake a randomised controlled experiment to evaluate effect of the updated list of gambling activities on estimates of gambling prevalence and harm.

To meet these objectives, we have designed a study comprising three randomised experiments, one for each research question set by the Commission. This involves conducting a new survey using the NatCen online panel where participants are randomised into different treatment and control conditions relating to experimental treatment (see below for an overview of the control and treatment conditions in each experiment).

The total sample size will be 3,000. Because this is a 2*2*2 design there will be 8 distinct treatment groups of equal size (375).

In addition, we will use data already collected by the Commission (using the YouGov panel) for the third experiment, combining it with data collected from this study.

Experiment	Research objective	Hypothesis	Control	Treatment
Experiment One: Varying the survey invitation description	Conduct research to better understand the relationship between survey topic and the propensity of gamblers to respond to survey invitations	Increased estimates of gambling prevalence in surveys that explicitly mention gambling as the survey topic	'Health and Lifestyle'	'Gambling experiences'
Experiment Two: Social desirability	Undertake research to better understand the role of socially desirable responding as the driver of the difference in gambling estimates between in-person	Participants are less likely to disclose their true responses to gambling questions in the presence of an interviewer due to social desirability bias	Interviewer not present	Interviewer present

	and self-completion surveys			
Experiment Three: Gambling activities list	Undertake a randomised experiment to evaluate the effect of the updated list of gambling activities on estimates of gambling prevalence and harm	Estimates of problem gambling, as measured by the PGSI, will be higher when the list of questions measuring gambling activity over the last 12 months includes a broader and more up-to-date set of behaviours	Health Surveys activities list	GSGB activities list

Study One: conduct research to better understand the relationship between survey topic and the propensity of gamblers to respond to survey invitations

In Study One, we propose an experiment to test the hypothesis that at least part of the difference in estimates of gambling behaviour between surveys conducted in different modes may result from a correlation between response propensity and problem gambling. It is well known that one of the drivers of survey response is interest in the topic of the survey (Groves and Couper, 1998) and it follows from this that people who gamble may be more likely to take part in surveys when the stated topic of the survey is gambling than when gambling is not mentioned specifically in a survey invitation. This correlation would have the effect of increasing estimates of gambling prevalence in surveys that explicitly mention gambling as the survey topic compared to surveys that do not. A prior experiment by Williams and Volberg found this to be the case (Williams and Volberg, 2009).

Such a nonresponse mechanism would be consistent with the observed pattern of gambling estimates in the UK, that tend to be higher for surveys specifically about gambling (e.g., the Treatment and Harm surveys conducted by GambleAware, and the GSGB) compared to surveys that are introduced to potential participants as more generically about health and wellbeing (e.g., the Health Surveys for England and Scotland).

To test Hypothesis One, we will implement a randomised experiment using the NatCen online panel, where panellists will be invited to take part in a survey of duration approximately 5-6 minutes. For half the issued sample the invitation will explicitly identify gambling as the topic of the survey, while for the other half, the survey topic will be referred to as ‘health and lifestyle’ (tbc). We will issue invitations to 6000 panel members in total, assuming a response rate of approximately 50% in each treatment condition. Note that because experiment two requires a random half of the sample to be interviewed on the phone, all issued sample members must have provided both an email address and a phone number. Such panel members tend to be somewhat more engaged, in terms of propensity to respond to survey invitations, than panel members who do not provide a phone number.

The quantities of interest will be a) the difference in the probability of response between the treatment and control conditions and b) differences in estimates of gambling behaviour between treatment and control conditions.

Our expectation is that estimates of gambling behaviour will be higher when gambling is mentioned as the topic of the survey on the basis that people are more likely to participate in surveys when they are interested in the topic. However, it is also plausible that people with problematic gambling may not wish to take part in a survey on this topic as it could be distressing to them. We will therefore use two-tailed hypothesis tests for this treatment.

Study Two: undertake research to better understand the role of socially desirable responding as the driver of the difference in gambling estimates between in-person and self-completion surveys

Study Two addresses the question of whether participants are less likely to disclose their true responses to gambling questions in the presence of an interviewer due to social desirability bias (Tourangeau and Yan, 2007). Gambling is a normatively undesirable behaviour, particularly harmful gambling, and so some people are likely to find disclosing such behaviour when an interviewer is present embarrassing and will therefore choose to under-report these behaviours. The same effect is likely to occur if an interview is conducted in the presence of other household members (Sturgis and Kuha, 2021).

If participants do not disclose their true responses to gambling questions, this would result in surveys which involve interviewers in any capacity[1] under-estimating the prevalence of gambling behaviours, relative to self-completion surveys where no interviewer is present. Such a pattern would be consistent with the observed pattern of estimates in the UK, where face-to-face interview surveys, such as the Health Survey for England, tend to produce lower estimates of gambling behaviours than self-administered surveys (the Treatment and Harm surveys, the GSGB).

We propose a design in which participants to the survey proposed for Study One (n=~3,000) are randomly assigned to treatment (n=~1,500) and control (n=~1,500) conditions (orthogonal to the survey invitation treatment). In the treatment condition, participants are invited to be interviewed on the phone by a survey interviewer. Participants are then administered a standard battery of gambling questions, including the PGSI as well as some questions on health and lifestyle. Participants in the control condition will be invited to complete the same set of questions by online self-completion.

The quantities of interest here will be the differences in estimates of gambling behaviour, with the expectation that gambling estimates will be lower in the treatment condition (interviewer administered). Our expectation is that estimates of gambling behaviour will be lower in the treatment condition (interviewer administration) and we will therefore use one-tailed hypothesis tests for this treatment. Note that half of the respondents in each treatment/control group will be interviewed on the phone and half by self-completion.

In addition to this experimental design, we will also gather observational data by administering questions to participants in the control condition (self-completion) who reported at least some gambling. These questions will ask participants to imagine that they were administered the gambling questions they just answered in the presence of an interviewer and to assess whether they would have given the same or different answers.

For participants reporting that their answers would have been different, further questions will be administered to determine the direction of the difference. The a priori expectation is that participants will report that they would have been less likely to disclose gambling behaviour in the presence of an interviewer.

Note that this additional aspect would not be an experimental design, so the responses cannot be treated as having been caused by the presence of an interviewer. There is also the potential for 'demand effects' in that participants may figure out that they are supposed to answer in a particular way that is consistent with the researcher's expectations. Nonetheless, this should provide useful ancillary data of relevance to the core question of Objective Two.

[1] Note that questions on gambling participation and the PGSI are asked in paper or online self-completions in the Health Surveys for England and Scotland, but an interviewer is present at the time of completion.

Objective Three: undertake a randomised experiment to evaluate the effect of the updated list of gambling activities on estimates of gambling prevalence and harm

The question here is whether estimates of problem gambling, as measured by the PGSI, are higher when the list of questions measuring gambling activity over the previous 12 months includes a broader and more up-to-date set of activities, particularly online gambling, (which we will call the updated list) compared to the standard set of gambling activities used in the Health Survey for England (HSE) (which we will call the standard list). This is because the standard set of questions may miss some participants who gamble online and are therefore not administered the PGSI (the PGSI is only administered to respondents who report some gambling in the past year). Because such missed participants may have higher PGSI scores (given the correlation between online gambling and PGSI), the effect would be that the standard list produces lower estimates on the PGSI.

We will address Objective Three by randomly assigning participants in our survey to a third treatment arm, orthogonal to the first two, where one half of the sample (n=~1,500) is administered the standard list of gambling activities, and the other half is administered the updated list (n=~1,500).

The quantities of interest will be a) the difference in estimates of PGSI score between the treatment conditions and b) the difference in sample composition of those identified as having gambled in the previous 12 months between treatment conditions.

The Commission has already implemented the same design using the YouGov panel and have shared this data with us. We will combine the Commission sample with the sample we will collect to maximise sample size and, therefore, the precision of estimates.

Our expectation is that reported gambling behaviour will be higher using the updated list and this was the direction found using the Gambling Commission study. We will therefore use one-tailed tests for this treatment. Because the PGSI is measured as a derived linear variable with a high rate of zeros, we propose to use logistic and negative binomial regression models to test differences between treatment conditions for different derivations of this variable.

We will also test for interactions between the treatment conditions on all relevant outcomes.