

NIESR project on the socio-economic costs and benefits of gambling –
with a focus on the costs of gambling-related harm

Summary and Preliminary Findings

- **Project objectives**

Our project has three key objectives:

- 1) provide a more precise estimate of the fiscal costs of problematic gambling;
- 2) simulate the economic effects of spending changes as a result of reduced problem gambling activity;
- 3) calculate the total economic benefits of problem gambling, at-risk gambling and low-risk gambling.

The main contribution of our report concerns the first objective, which extends previous attempts in this field to provide a narrower range of fiscal costs of problematic gambling than existing evidence. Our estimate aims to inform the ongoing review of the 2005 Gambling Act.

- **The fiscal costs of problematic gambling**

Previous attempts to measure the fiscal cost associated with problematic gambling have produced similar central estimates. In its 2016 report, the Institute of Public Policy Research (IPPR) found that the total excess fiscal cost of problem gamblers is about £730 million, while the 2021 report by Public Health England (PHE) concluded that this cost is approximately £647 million (PHE, 2021). The IPPR provided a wide range of estimates, from £260 million to £1.2 billion per year (IPPR, 2016) based on a large range of estimates of the proportion of problem gamblers in the UK population – from 0.2 per cent to 1.4 per cent of the population aged 16 and older and living in private accommodation.

By contrast, PHE assumed a significantly smaller number of problem gamblers (0.3 per cent), which is not borne out by a very recent report (Ashford et al., 2022) on gambling prevalence that shows that the rates of problem gamblers in the Health Survey England data are understated and, in reality, closer to 0.57 - 0.87 per cent of the population.

Our report aims to reduce the uncertainty around estimates of fiscal costs of problem gambling by providing policy makers with a narrower estimate (first objective), while also offering insight into how spending may change following a reduction in problem gambling activity (second objective).

2.1. Metrics of harm

To arrive at an estimate of fiscal cost we first need to understand the excess demand problematic gambling places on public services and other ways in which it has an adverse impact on public finances. Is problematic gambling associated with higher public service usage, such as NHS mental health support, and does problematic gambling have any impact on working patterns in a way that could affect government tax receipts?

Building on the 50 metrics of gambling-related harms (Wardle et al., 2018), which inform the Gambling Commission's National Strategy to Reduce Gambling Harms (GC, 2019), we assess areas from which the harms caused by problem gambling could result in a fiscal cost. Not all 50 harms have a fiscal implication, but we divide each into four categories, which have a fiscal implication for

- 1) healthcare spending;
- 2) welfare support;
- 3) housing needs;
- 4) incidence of crime.

2.2. Datasets

To determine demand for these public services by problem gamblers, we examined two datasets. The first is the Wealth and Asset Survey (WAS) provided by the Office for National Statistics (ONS), which is a longitudinal survey of a large representative sample of individuals and households across the UK. WAS includes an extensive collection of variables relating to individual and household finances, which give us a key insight into the resources side of the metrics we employ.

The second is the Adult Psychiatric Morbidity Survey (APMS), which is a dataset provided by the National Health Service (NHS) that surveys psychiatric disorders. The dataset we use in particular is from 2007, as this includes the DSM-IV screen for problematic gambling behaviour. Since this data is over ten years old, we conducted some robustness checks to confirm what we can and cannot infer from this dataset for gambling-related harm at present.

2.3. Identifying problem gamblers

A key task is to identify problematic gambling behaviour in both datasets. The APMS data includes the standard DSM-IV screen, which allows us to categorise all gamblers into three categories:

- i) problem gamblers (with a score of 3+)

ii) at risk gamblers (with a score of 1-2)

iii) non-risk gamblers (with a score of 0)

We use the non-risk gamblers score slightly differently to other papers as we look at only gamblers with a score of 0, rather than everyone (including non-gamblers) with a 0 score so that we can see if the act of gambling itself, even if done in a safe way, has any effect on harms.

In the WAS data, this is less straightforward as this dataset does not include these standard measures of problem gambling behaviour. On the other hand, the WAS data are nationally representative and include information on income, taxes and benefits, together with rich data on demographic and behavioural characteristics. For this reason, they are potentially useful for estimating costs of problem gambling on the welfare state as well as aggregation to national levels.

The WAS dataset includes partial information on gambling activity, specifically gambling wins (£500 or more in the past 2 years) and losses (games of chance as a reason either for becoming insolvent or for financial situations becoming worse). There are also data on financial ruin and economic inactivity due to health reasons, which in combination with gambling activity can be taken as a proxy for problem gambling. However, the above information does not cover gambling behaviour to the extent that they are prevalent in the population, presumably because of underreporting.

The availability of a very large collection of additional information in the WAS dataset, particularly on demographic, economic (income, wealth, education and labour markets) and behavioural characteristics, makes it possible to construct statistical models that can produce micro-simulated data on gambling behaviour. We use a zero-inflated ordered probit model (Harris and Zhao, 2007) with the above 3 states to construct a synthetic indicator of problem gambling, which calibrates well to aggregate incidence of problem and at-risk gambling in the population (as estimated using the BIT survey; see below). This approach enables us to obtain estimates of welfare costs (particularly benefit incomes) as well as evaluate the uncertainty surrounding such estimates. Such an approach is only second best to real data on gambling behaviour, which could be available if the WAS were to include PGSI/DSM measurements in the future.

2.4. Calculating the excess fiscal cost of problem gambling

Once we have identified the categories of gambling behaviour, we begin our analysis by determining how the above metrics could result in a fiscal cost. For instance, the health metrics included in our list refer to increased anxiety, stress, increased alcohol consumption and other health harms as a result of problem gambling. These do not in of themselves result in a fiscal cost, but they do if they for instance result in the problem gambler going to their GP with problems such as mental health issues. Therefore, we attribute each metric to a 'bottom-line-cost' which has a noticeable fiscal implication.

The next step is to test our samples of gambling behaviour against these bottom-line-costs. We seek to produce a coefficient for each metric to see by how much a particular type of gambler is more or less likely to use a public service or engage in a particular activity, such as how much a problem gambler is more likely to visit a GP with a mental health complaint, while controlling for key characteristics and factors that could bias results. Although there are many ways metrics may result in a fiscal cost, if our coefficient is not statistically significant, then we do not use the metric in question.

For problem gamblers, we compare their likelihood to use a public service to at risk gamblers. The reason for this is due to the fact problem gamblers will likely more closely resemble an 'at risk' gambler should they reduce gambling expenditure, as evidence suggests problem gamblers can often move cyclically between the 'at risk' and 'problem gambler' categories. Therefore, they present a more plausible counterfactual for analysis of the public service usage of problem gamblers.

The second reason is that we do not find that at risk gamblers require more public services, which means that we did not find any association between these gamblers and excess fiscal costs. From the point of view of reducing the costs of gambling-related harm, the goal for policy makers is to move problematic gamblers into the at-risk category rather than to reduce their gambling activity to zero.

From here we use existing research to find the per person national average for that metric, such as the average times a person visits a GP with a mental health complaint, multiply this by our identified coefficient to arrive at the number of times a problem gambler visits a GP more than at at-risk gambler for this reason.

We have an estimate of the additional fiscal burden per person for each bottom-line-cost, such as we find that someone experiencing problem gambling goes to the GP 1.35 times more a year than an at-risk gambler.

To arrive at an estimate of the fiscal cost, we rely on a Unit Cost Database¹ maintained by the Greater Manchester Combined Authority.² This database is an amalgamation of research into determining the fiscal cost of particular services or activities such as national tax-receipt loss from not working. Continuing with our GP example, we find here that the average cost per appointment is £31, so we multiply this by the additional times we find a problem gambler goes to the GP more than at-risk gambler, arriving at a fiscal cost of £41 per person experiencing problem gambling.

Repeating this exercise for each category of harm, we arrive at an **excess fiscal cost per problem gambler of £3,400 per year**. By applying this first at the per-person experience problem gambling level allows us to alter total fiscal costs at the national level based on different estimates of the prevalence of problem gambling in the population.

¹ This is the same database used by aforementioned IPPR and PHE reports which back then was maintained by New Economy.

² These figures are for the UK and are not specific to Manchester

The breakdown of the excess costs per problem gambler is as follows:

- Healthcare (GP visits): £41
- Healthcare (hospital visits): £1,100
- Crime: £240
- Court Appearances: £500
- Homelessness Support: £220
- Benefits Payments: £1,300

By combining multiple datasets and deploying NIESR's unique microsimulation models, we estimate that problem gamblers are more likely to require public services than the at-risk gambler, including:

- 6 times more likely to require hospital treatment
- 3 times more likely to require GP services
- 4 times more likely to commit crime
- 4 times more likely to require homelessness support
- Require 75% higher welfare benefits than 'at risk' gamblers

We subtract each of this excess demand for public services by using the Unit Cost Database mentioned earlier.

The **total excess fiscal cost associated with problem gambling is approximately between £900 million and £1.6 billion per year**. This range assumes that the total number of problem gamblers is approximately 300,000 to 470,000 (0.57-0.87% of the total population of 16 years and older living in private accommodation), which is based on multiple datasets from Health Survey England (HSE). **The central estimate is £1.2 billion per year** (assuming 378,000 or 0.7% of the population are problem gamblers).

2.5. Comparison with existing evidence

Previous studies of this nature have struggled to estimate narrow ranges of total fiscal cost because national estimates of problem gambling prevalence are themselves wide. For example, IPPR (2016) assumes that the problem gambling prevalence estimate ranges from 0.2 to 1.4 per cent of the population aged 16 years and older and living in private accommodation. The difference may appear small, but when you consider this is a difference of 380,000 people this has a large effect on the size of the final range of fiscal costs. In turn, it is the reason for IPPR's wide range of the economic costs of harm, from a lower bound of £230 million to an upper bound of £1.3 billion. The sheer size of the difference between £230 and £1.3 billion makes it difficult for policy makers to use it. That is why we first make estimates at the individual level and then calculate the total excess fiscal costs based on new evidence about national prevalence (Ashford et al., 2022).

For the purposes of this report, the national prevalence estimates we use are based on the Health Survey England (HSE) series. This is a household survey of all adults aged

16 and over living in private households in England, using random probability sampling methods. To reduce the size of the estimated range of problem gambling prevalence in the population, we combine multiple years together (2015, 2016 and 2018) to increase the sample size and thus reduce the confidence intervals, resulting in a range of 0.37 to 0.62 per cent. Although this range is sufficiently narrow for total fiscal estimates to be usable, we believe the range itself is likely to be a conservative estimate of the number of people experiencing problem gambling. It does not include those living in institutions (such as student halls of residences or prisons where we may reasonably expect higher rates of problematic gambling among these populations) and recent methodological work published by the Gambling Commission suggests that the HSE may underestimate the proportion of people experiencing problem gambling (Ashford et al., 2022).

This is why it is important our report provides the per-problem gambler estimates, so that our calculations can be applied to future national prevalence reports.

2.6. Qualifying our results

Our estimates of fiscal cost are likely underestimated for two reasons:

The first reason is our decision to drop non-statistically significant metrics, such as incidence of going to the GP with a physical health complaint. It is entirely conceivable that even metrics that do not yield a statistically significant result have in reality a fiscal implication, notably the association between problem gambling and poor physical health. In particular, we do not have data of suicide rates of problem gamblers, which made up the bulk of the societal costs within the PHE report.

The decision to drop a particular metric from our analysis does not itself indicate zero relationship between problem gambling and that public service usage. What it does mean is that we are unable to spot sufficient observations to determine an association. Therefore, we likely understate some estimates of fiscal cost in certain areas, although we do not believe that this would have a substantial effect on our results.

The second reason is that our analysis of the potential fiscal implications for problematic gambling is not an exhaustive list. Our ability to identify fiscal costs is dependent on data including measures of those effected by problem gambling and measures of public service usage. This means we have been unable to identify 'affected others', those who change their behaviour to support the problematic gambling behaviour of someone close to them. It is possible that a loved one could seek advice from the GP because they are concerned about the mental or physical health of a loved one on engaging problematic gambling behaviour or even commit a crime to support them or themselves financially. Because there is currently no way to spot these affected others in the data, we are unable to attribute a fiscal cost to a potentially substantial constituency of those effected by someone else's problematic gambling behaviour.

References

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