

EXPLORING ONLINE PATTERNS OF PLAY

Interim report

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Glossary of terms (I)

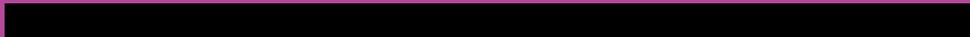
- **Betting:** betting generally relates to events external to the gambling environment (e.g., results of cricket matches).
 - **In-play betting:** in-play betting is betting on a sports match between the start and end of a particular match, i.e., while the match is taking place. In the case of cricket, where some matches are played over more than one day, 'in-play' refers to bets placed between the start and end of each individual day. In-play betting stands in contrast to traditional pre-match betting where wagers are placed before the match starts.
- **Gaming:** gaming outcomes are generated within the gambling environment (e.g., by the roulette wheel). Gaming covers a range of gambling activities: bingo, live and virtual casino games, poker, slots, instant wins.
- **Stake:** stake is the amount wagered on the outcome of an individual gamble; for example, on the winner of a horse race or the number selected from one spin of a roulette wheel. Sometimes operators add a bonus to the stake as a promotional device, but here the stake is taken to refer only to the customer's own money put at risk.

Glossary of terms (II)

- **Spend:** total amount gambled by the customer minus any winnings. If spend is negative, this means that the customer has collected winnings greater than his or her stakes.
- **Gross Gambling Yield (GGY):** the amount retained by operators from customer stakes after the payment of winnings but before the deduction of the costs of the operation.
 - In this report the terms Gross Gambling Yield and spending/spending losses all refer to the same thing: the customers give some money as stakes and may get back some money in winnings. What the operator then keeps is called Gross Gambling Yield and for consumers it is what they as a group have lost/spent. The terms are used interchangeably depending on the context in which a statistic is presented.
- **Session:** a session refers to successive play of gambling games, e.g., the customer plays slots games over a period of 20 minutes before going away. In the data, we do not observe exact start and end times because gaming data are summarised over 15-minute windows. For analysis, we define a session as gaming spread over closely adjacent 15-minute windows where there is a reasonable presumption that the whole represented a single block of time dedicated wholly or partly to gambling.

Introduction and the data

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Introduction

This research was commissioned by GambleAware to improve understanding of the online gambling market. The research questions are:

- What are the basic patterns of play within online gambling?
- How do these patterns of play vary for different types of people?
- How do patterns of play vary among different products and characteristics?
- What types of behaviours are associated with problem or at-risk gambling (for example use of credit cards, reverse withdrawals etc.)?

This presentation provides evidence to the questions above and is divided into four areas of findings:

- Patterns of betting: which includes gambling on external events, such as sports or horse and greyhound racing;
- Patterns of gaming: which covers bingo, live and virtual casino games, poker, slots and instant wins;
- Patterns of the interaction between betting and gaming: which draws together the findings for all types of gambling;
- Safer gambling tools and interventions: which includes customer tools and operators' interventions for safer gambling.

Project overview

To answer these research questions, the following programme of research has been set up:

1. In-depth interviews with people identified as either potential or actual problem gamblers (who gamble online);
2. Analysis of gambling industry data of people's actual behaviour when gambling online;
3. A follow up survey with a sample of those analysed at stage 2, to provide context to their online gambling behaviour (*still to be conducted*).

This presentation focuses on the interim findings from **stage 2** above, the analysis of gambling operator data.

Project timeline

1. Project inception	December 2018
2. Qualitative work: In-depth interviews	April 2019 – August 2019
3. Industry data scoping work	May 2019-September 2020
4. Analysing of industry data	September 2020 – February 2021
5. Interim report	March 2021
6. Design, development and piloting of survey	Spring 2021
7. Survey fieldwork	Summer 2021
8. Final Patterns of Play Findings report	Early 2022

Sampling

- Seven major online operators agreed to supply data to be used in the analysis.
- It was decided to sample cases (customer accounts) from each operator and not to use all the cases, as the resulting data files would otherwise have been extremely large. Cases were selected at random, which means that the results are generalisable to all participating operators.
- Sampling was undertaken as follows:
 - Each operator was requested to provide an anonymised list of all its accounts where the account's registered address was in Great Britain and where there had been at least one transaction (in which money had been gambled) between July 1, 2018 and June 30, 2019.
 - A stratified random sampling process was used to select the 20,000 accounts for which each operator was to supply records of activity. Thus, sample selection was not the responsibility of the gambling operators themselves.
 - There was a deliberate over-sampling of more frequently used accounts to ensure adequate numbers for safe generalisations to be made about the behaviour of the most highly engaged accounts.
 - Sample weights were applied at the analysis stage, which means that estimates related to the behaviour across the whole account base are not biased by the over-sampling of more frequently used accounts.
- It should be noted that this data is a sample of players from a sample of operators, and therefore all figures presented are estimates rather than true values. If a different sample was drawn, we would get slightly different figures. Statistically, as it is such a large sample, the margins of error around each estimate are small though.

Summary of the data (I)

- The final aggregated dataset comprised one year's gambling activity data for 139,152 accounts.
- The data included the age and gender of the account holder:
 - Gender was missing for 17.3% of the accounts used for betting and 5.6% of accounts used for gaming;
 - The data recorded the age of each player as of July 1, 2018;
 - Because age verification is a licence requirement, age was present in the data for virtually the whole sample;
 - In this report, we sometimes present estimates regarding differences in behaviour between men and women. For these estimates, analysis was based only on accounts where gender was known. For all other estimates, analysis was based on all accounts including those where gender was missing.
- Operators added the decile of an Index of Multiple Deprivation (IMD) to the dataset based on the postcode associated with each account. IMD measures the deprivation of a small area where an account is registered. However, it does not necessarily mean that the owner of the account experienced the same level of deprivation as their surrounding area.
 - IMD was missing for 1.0% of observations. These accounts are excluded from analysis by IMD, but are included in all other analysis.¹
- The following slide presents a description of the sample and its breakdown by age, gender and IMD.

Summary of the data (II)

	Unweighted total	Unweighted %	Weighted total	Weighted %
Male	89,805	64.54%	5,718,000	55.92%
Female	29,676	21.33%	2,028,072	19.83%
Unknown gender	19,671	14.14%	2,479,074	24.24%
Aged under 21	6,091	4.38%	817,236	7.99%
21 to 24	12,784	9.19%	1,295,678	12.67%
25 to 34	41,210	29.62%	3,391,221	33.17%
35 to 44	32,303	23.21%	2,157,695	21.10%
45 to 54	24,539	17.63%	1,475,311	14.43%
55 to 64	15,300	11.00%	779,253	7.62%
65 to 74	5,560	4.00%	246,248	2.41%
75 and over	1,365	0.98%	62,504	0.61%
IMD 1	17,598	12.65%	1,196,653	11.70%
IMD 2	16,186	11.63%	1,093,329	10.69%
IMD 3	15,552	11.18%	1,101,064	10.77%
IMD 4	14,552	10.46%	1,071,675	10.48%
IMD 5	13,698	9.84%	1,006,368	9.84%
IMD 6	13,017	9.35%	970,429	9.49%
IMD 7	12,598	9.05%	966,370	9.45%
IMD 8	12,177	8.75%	956,834	9.36%
IMD 9	11,902	8.55%	916,462	8.96%
IMD 10	10,352	7.44%	842,508	8.24%
IMD unknown	1,520	1.09%	103,453	1.01%
Total	139,152	100%	10,225,146	100%

Summary of the data (III)

- Operators were asked to provide separate files documenting accounts' betting and gaming transactions carried out during the year.
- Gaming covers a range of gambling activities: bingo, live and virtual casino games, poker, slots, instant wins.
- Though a few products - such as virtual betting - blur the distinction, betting generally relates to events external to the gambling environment (e.g., results of cricket matches) whereas gaming outcomes are generated within the gambling environment (e.g., by the roulette wheel).
- Betting may also attract gamblers with different motives for gambling from those who prefer gaming:
 - Betting can be a skill-based activity whereas, poker and certain casino games apart, most of the products in our 'gaming category' are games of pure chance.
- We present separate analyses for the betting and gaming sub-sectors of the online industry in GB, partly because of these differences, but principally because the interesting features of the two types of gambling are different and are therefore measured using different variables.
- We also present the overall activity of online gamblers (betting and gaming data combined) as players accounts do/may cover both behaviours:
 - 25.1% of accounts were used for both betting and gaming activities.

Summary of the data (IV)

- **Betting data** was very granular, recording details of every transaction:
 - For each bet: the date and time of every bet made, the stake, the amount of any bonus added to the stake by the operator, the gross pay-out to the bettor (including return of stake), the maximum gross pay-out to the bettor that would be made if the bet/every component of the bet were successful, the subject(s) of the bet (e.g., tennis, football), and whether it was an in-play bet.
- **Gaming data** was recorded in an aggregated way:
 - The whole year was divided up into 15-minute segments and for each such window it was recorded which products had been played (e.g., bingo, live casino, slots), how many gambles had been made, how much had been staked, how much credit had been added to the account in winnings.
 - These 15-minute segments were then used to define gaming **sessions**, where activity in the account was recorded in consecutive windows separated on each side by at least two windows of non-activity. This construct enabled us to estimate the prevalence of lengthy play.
- In addition to details of gambling transactions, the data set also carries information on the use of safer gambling self-management tools by customers and operator-initiated social responsibility interventions.
- Finally, ‘account balance data’ were requested: these data files recorded every payment into or withdrawal from the customer’s account.

Summary of the data (V)

- We estimate that operators included in the study captured more than 85% of the online betting market in Great Britain, measured in terms of gross gambling yield (GGY), during the data year, making it highly likely that the sample of betting-active accounts is representative of all active online betting accounts in Great Britain.
 - For the principal products over the same time period, each product's contribution to betting GGY was relatively similar between our data and data for the whole GB market.
 - The sample includes only operators betting operations and data and findings in this report do not reflect activity on betting exchanges or in pools betting (which accounted for 9.8% of total betting GGY over the study period, according to Gambling Commission Industry Statistics).
- Because five of the seven operators were focused on betting, we estimate that the seven's collective market share was much lower in gaming than in betting, at 37.5% share of total GGY. However, the split between different gaming products (notably slots versus casino) was roughly reflective of figures for the whole online gaming market, derived from regulatory returns¹:
 - The shares of GGY in our estimates were 60.4% for slots, 35.8% for casino games and poker, and 3.6% for bingo. In the data from the Gambling Commission, the shares were 64.9% for slots, 29.7% for casino games and poker, and 5.4% for bingo.
 - The under-representation of bingo in our operators' revenue may be associated with the success of specialist bingo sites that were not included in our data.
 - This makes us more confident that patterns of gaming among accounts of the seven operators will adequately represent patterns of gaming in the GB online sector as a whole.

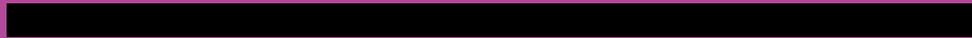
¹ The Gambling Commission's online review in 2018 showed the betting market is more concentrated with larger operators than the online casino market. The review states that the seven largest betting operators accounted for 83% of their market, with the seven largest online casino (rather than gaming) operators accounting for 47.8% of their market. These figures, based on 2016 data and prior to several relevant mergers, may have changed but it is highly likely that the gaming market remains more fragmented. <https://www.gamblingcommission.gov.uk/PDF/Online-review-March-2018.pdf> (Accessed 09.03.2021)

Limitations

There are two major limitations of the data set and our research:

1. Patterns of betting among accounts of the seven operators are a fair representation of patterns of betting in the GB online sector as a whole. Similarly, patterns of gaming among accounts of the seven operators are an adequate representation of patterns of gaming in the GB online sector as a whole.
 - However, the degree of confidence to be attached to any picture we present of behaviour across the online gambling space as a whole is lower.
2. As with other published international research on online gambling, we can observe an individual's activity in only one online account. We do not observe any other gambling in which individuals may have engaged using accounts with other operators (or indeed any of their gambling at land venues):
 - The most engaged online gamblers may use several different accounts, spreading high spending across different operators such that they are not identified as heavy gamblers in any of them;
 - This implies that our estimates of how many players lose large sums of money while online gambling should be treated as lower-bound estimates.

Patterns of play: Betting



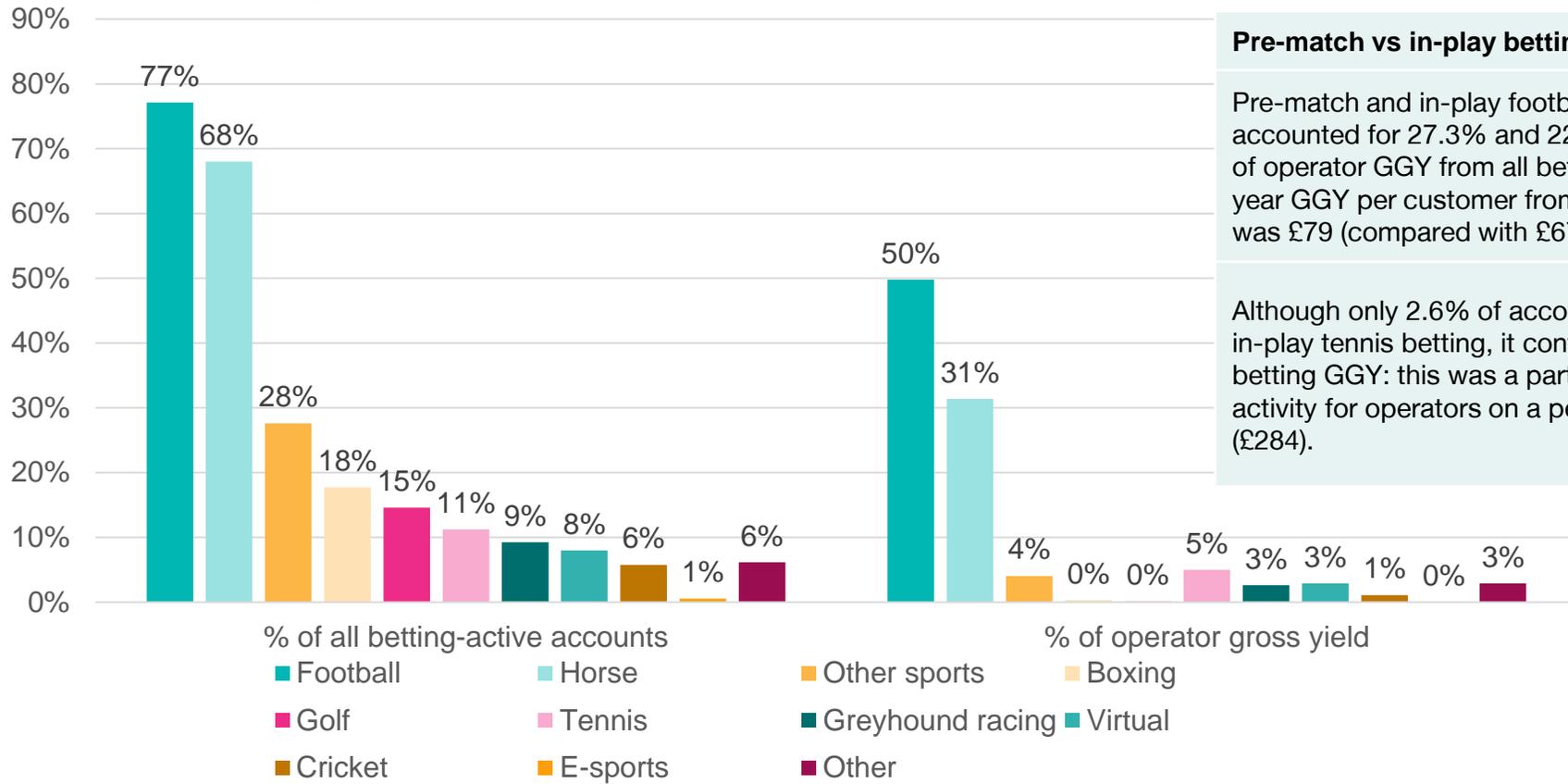
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Patterns of betting: Overview

- The dataset contained 139,152 accounts, of which 86% (110,211) were used for betting during the one-year study period, and will be referred to as “betting-active accounts”. This is similar to the findings of the Health Survey for England (2018), which found that of everyone who had gambled online in the past year, 83% did so through online betting with a bookmaker.¹
 - Where gender was available, 78.4% of betting-active accounts were held by men; customer ages ranged from 17 to 100 (note that the age of each player is recorded as their age on July 1, 2018. Some players were 17 on this date but this does not imply underage play since the account will have been opened later in the data year, after their eighteenth birthday);
 - 23% of accounts yielded a betting profit for the account over the one-year period.
- The high proportion of accounts that were used for betting during the year (86%) probably reflects that most operators taking part were particularly well-known for their betting offer.
 - Football and horseracing were by far the most popular subjects for betting;
 - Football-only bets generated half of betting GGY and horseracing-only more than 30%;
 - Most accounts were used infrequently with low average spending over the year;
 - 10% of betting-active account holders placed bets twice a week or more often, on average;
 - 2.2% accumulated net spending of more than £2,000 over the year.

Patterns of betting: Principal betting activities (I)

% of betting-active accounts for which at least one bet was placed in the year in the following categories and % of operator GGY from all betting¹



Pre-match vs in-play betting

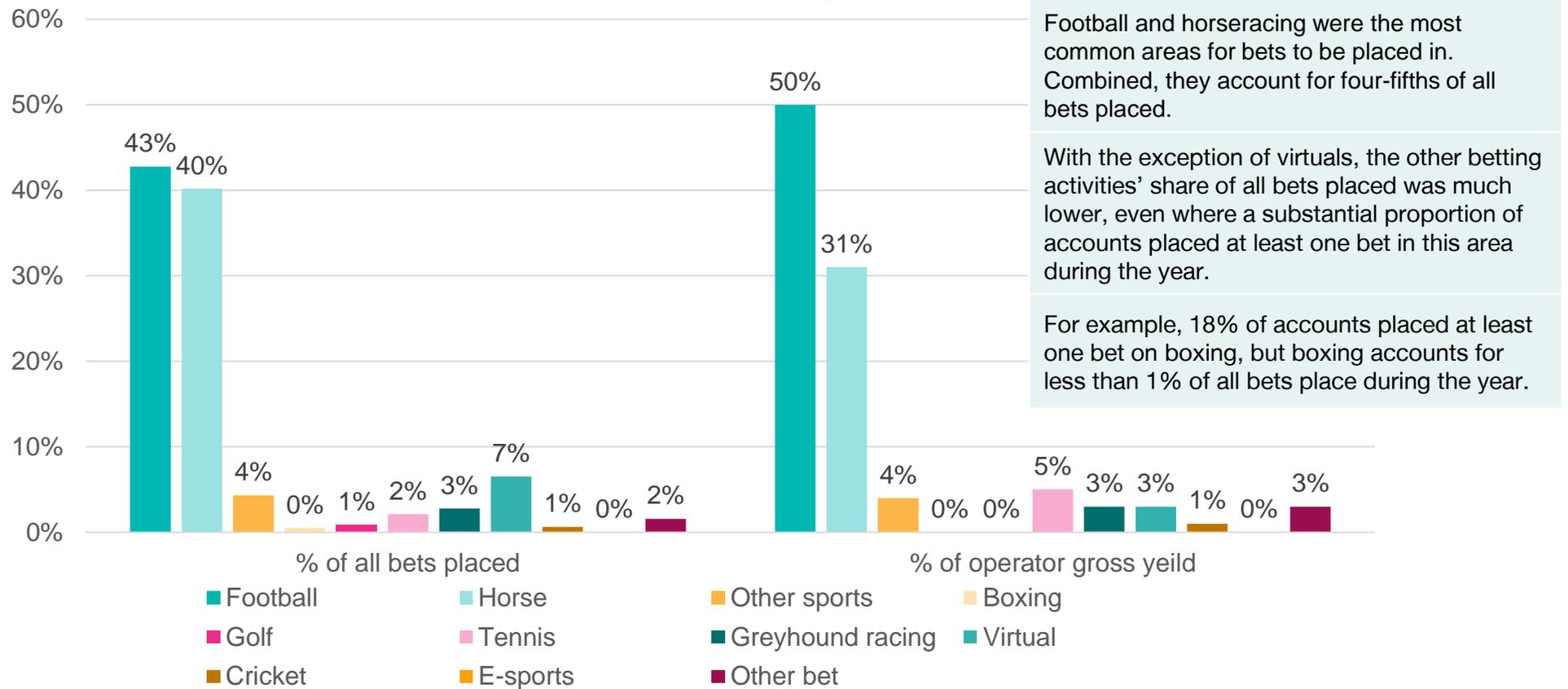
Pre-match and in-play football betting accounted for 27.3% and 22.5% respectively of operator GGY from all betting. Average one-year GGY per customer from in-play football was £79 (compared with £67 pre-match).

Although only 2.6% of accounts were used for in-play tennis betting, it contributed 4.2% of betting GGY: this was a particularly lucrative activity for operators on a per-account basis (£284).

¹ A single bet may be placed across multiple categories (e.g. a bet that covers both football and horses). 2.3% of bets were placed across multiple categories and were excluded from the GGY calculation as it was not possible to attribute the correct proportion of the bet win/loss to each category.

Patterns of betting: Principal betting activities (II)

% of bets placed (solely or partially)¹ in the following categories and % of operator GGY from all betting²



¹ A single bet may be placed on multiple categories (e.g. a bet that covers both football and horses). Hence the percentage of bets placed in the following categories chart (left hand side) do not total to 100% as it includes these multiple categories bets.

² 2.3% of bets were placed across multiple categories and were excluded from the GGY calculation as it was not possible to attribute the correct proportion of the bet win/loss to each category.

Patterns of betting: Demographics

- The online betting sector derived an estimated 94% of its revenue from men. This is because:
 - More men than women participated (where gender was available, 78.4% of betting active accounts were held by men);
 - Men placed more bets than women; this varied by age, but across the eight age groups analysed the median male bettor placed between two and five times as many bets as the median female bettor;
 - Men's typical stake was somewhat higher; male bettors median stake size was £5.25, compared with £4.13 for females;
 - Among the highest spending accounts (the 0.7% of accounts which spent £5,000 or more over the year), over 95% were held by men, typically in their 40s.
- The small e-sports market at these operators was overwhelmingly male; more than 80% were under 35, with the greatest proportion of customers drawn from the 25-34 age group. Most who bet on e-sports did so on only one day in the period;
- There was a relationship, more evident in men, between betting success and age: the higher the age group, the lower the proportion of stakes lost;
- The younger the age-group, the greater the proportion of its spending was on sports betting¹. Whereas, after the age of 55 horse betting dominated;
- The typical bet size for members of younger age groups and residents of the most deprived areas was much lower than among older bettors and those from the least deprived areas:
 - However, these same groups (i.e., the young and those living in the most deprived areas) exhibited a stronger preference for longer-odds bets;
 - This was most evident for football betting where younger bettors, especially in 21-34 age band, typically wagered at much longer odds than older age groups.

Patterns of betting: Activity

We analysed data on eleven subjects for betting: football, horse racing, greyhounds, tennis, golf, cricket, boxing, e-sports, virtual sports, other sports, other betting.

- Football and horse racing were by far the most popular subjects for betting:
 - Of accounts used for horse racing bets, the most profitable 1% from the operators' perspective accounted for 70.4% of GGY;
 - Corresponding figures for football were 42.6% (pre-match bets) and 56.6% (in-play bets).
- More than 37% of accounts were used for only one betting subject, nearly always either football or horse racing;
- 56.2% of accounts were used for betting on 2-5 betting subjects;
- 6.4% of accounts were used for betting on 6-11 betting subjects;
- Male bettors were much more likely than female bettors to engage with a high number of betting subjects;
- There was a strong positive correlation between number of betting subjects and annual bettor spending: average annual spending escalated rapidly with number of betting subjects.

Patterns of betting: Spending levels

High annual stakes were concentrated in a minority of accounts:

- For example, the 10% of accounts with the highest annual stakes delivered 79% of GGY.
- Measured by account spending rather than betting annual stakes, dependence on a small proportion of accounts was even more marked: the 5% of accounts with the highest spending generated 86% of GGY.

Most account holders either won money betting or else lost only a relatively modest amount:

- 84.5% spent less than £200 over the full year;
- 1.5% of accounts generated spending losses of £2,000-£4,999 over the year. In this group:
 - 94% (of cases where gender known) were male; average age was 40;
 - 23% had addresses in the 20% most deprived areas;
 - Just over half incurred most (>80%) or all their spending losses betting on sport (as opposed to races and other events).

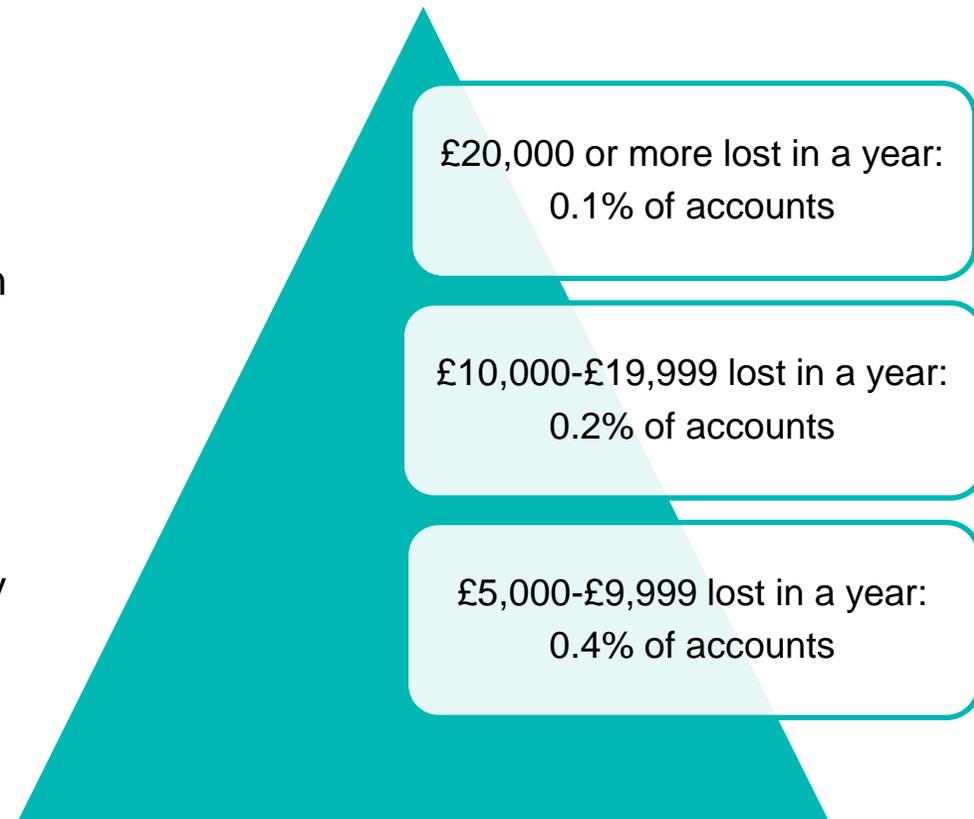
For 64% of accounts, the average number of bets per day for days when they were betting-active was less than three:

- For 1.4% of accounts, an average betting day featured more than twenty separate bets. We estimate that the operators had more than 120,000 of these heavily used betting-active accounts.

Patterns of betting: Accounts with largest spending losses

- The average age of account holders with the largest spending losses was early-to-mid-forties;
- More than 95% were men;
- 21.2% of those losing £5,000-9,999 and 15.4% of those losing £10,000-£19,999 lived in the 20% of most deprived areas.
- About 48% of the bettors in these bands incurred all or a substantial majority of their spending losses (>80%) from sports betting and 29.6% incurred all or a substantial majority of their spending losses (>80%) from race betting (horses and greyhounds).

Based on our sample, we estimate that these gambling operators had a little more than 60,000 accounts with spending losses of £5,000 or more (0.7% of accounts):



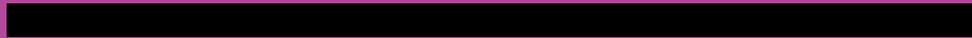
Riskiness of bets by age and IMD (I)

- We now consider which groups made riskier choices when making a bet. There are two dimensions to how much risk is taken on when making a bet:
 - stake size: how much money might be lost;
 - odds: how likely is it that the money will be lost.
- Kainulainen (2019)¹ proposed that the riskiness of betting choices by an individual could be captured by their “average potential gross win per bet”.....we call this *maxbetreturn*.
- We requested each operator to supply the value of *maxbetreturn* for each bet placed. Only three of the operators were able to include *maxbetreturn* in their data set. It was not possible for other operators to provide this because it required there to be a record of the odds at which losing bets were placed.
- However, the sample from three operators is still large and the profile of accounts of these three operators closely matched that for the full sample.
 - We therefore report results on risk-taking using the three-operator sample.

Riskiness of bets by age and IMD (II)

- Considering all betting activity, median stake size for bets placed by members of an age group tended to increase with age:
 - £4.61 for the youngest age group (under 21-year-olds), £7.59 for the oldest age group (75+ year olds).
- Nevertheless, the median value of the broader risk measure, *maxbetreturn*, was highest for 21–24-year-olds and declined noticeably with age from age 35:
 - £140 for age 21–24-year-olds, £94 for 65–74-year-olds;
 - Given that older bettors typically staked at higher levels on average. This difference suggests that young bettors typically wager at longer odds than older bettors.
- For each bet made by an individual, we divided *maxbetreturn* by the stake to give a measure of “*pseudo-odds*” for that bet. For a given individual, we took the median “*pseudo-odds*” across all his or her bets to capture preference for risk.
 - Typical “*pseudo odds*” were highest, at around 11, for bettors aged 21 to 45 years old but then declined with age, to 7 for the over-65s;
 - Thus, younger bettors appears to display a stronger preference for betting on relatively unlikely events, making their actual returns more volatile.
- Riskiness variation according to IMD decile.
 - Riskiness of individual bets was highest for the two most deprived deciles (*maxbetreturn* £127-£135) and then decreased almost monotonically (to £104 in the least deprived decile).
 - However, median stake size was lower in more deprived areas. It follows that risk-taking in more deprived areas was higher because of a tendency for betting typically to be at longer odds, on average, than in less deprived areas.

Patterns of play: Gaming



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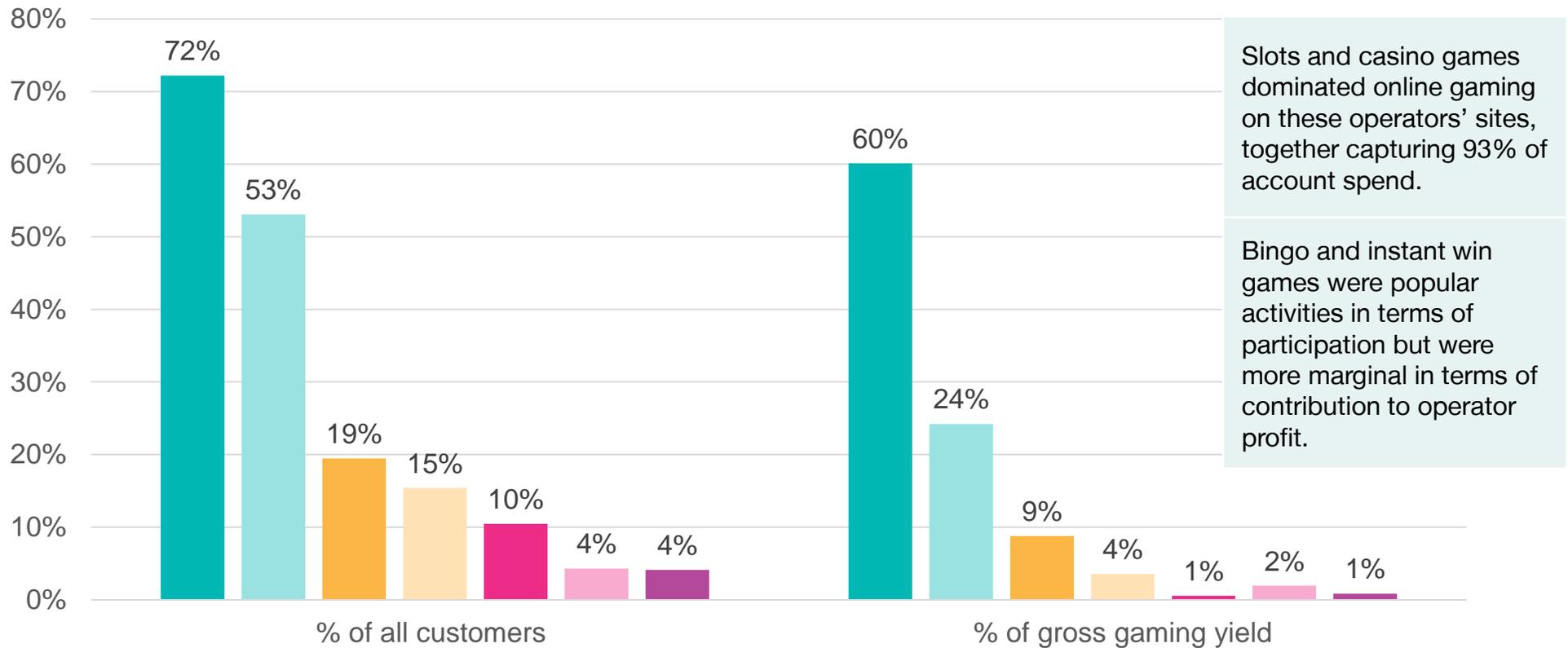
Patterns of gaming: Overview

- We had 84,572 accounts which had been used for at least one category of gaming product during the one-year study period. Based on this sample, and applying appropriate weights, we estimate that 39% of all online accounts with these operators were used for gaming. This amounts to just over 4 million accounts;
- Online gaming refers to: slots, live and virtual casino games, bingo, poker, instant wins (akin to online scratch cards);
- Slots and casino games accounted for 93% of GGY from online gaming at operators taking part in the study:
 - Slots was the principal product in the online gaming market: 72.2% of gaming-active accounts included at least some slots play and slots accounted for 60% of GGY from gaming products;
 - 53% of accounts featured play on virtual casino games and 19.5% on live casino games. Together these two categories provided 33% of operators' GGY from their customers;
- Bingo was a popular activity in terms of participation (15% of accounts used for gaming), though per-account spend was low and delivered only 3.6% of the operators' GGY from gaming products.

(Slide 13 shows how closely these match with Gambling Commission figures for the industry as a whole).

Patterns of gaming: Principal gaming activities

% of gaming-active accounts used for gaming and % of operator GGY from all gaming



■ Slots ■ Virtual casino ■ Live casino ■ Bingo ■ Instant wins ■ Poker ■ Tournament poker

Patterns of gaming: Demographics

- Based on the sample of accounts where the gender of the customer was known, we estimate that 69.7% of gaming-active accounts with these operators were held by men and they accounted for 74.0% of GGY from gaming; and 30.3% of gaming-active accounts with these operators were held by women and they accounted for 26.0% of GGY from gaming:
 - Women who took part in online gaming tended typically to engage more frequently and in longer sessions than men and to spend more than men;
 - Nevertheless, mean spending-per-account was significantly greater among men, which was driven by the presence of accounts with very high spend (which was more common amongst men).
- Participation in online gaming was highest in the 25-34 age group, which represented 16.9% of the British population, but which held 36.3% of accounts used for gaming and contributed 27.4% of GGY:
 - Under-25s also held a disproportionately high share of accounts, but made a low contribution to GGY because their average frequency of play and average stake size per play were low;
 - Mean spend increased with account holder's age (e.g., £119 for 21-24, £559 for 65-74), such that the contribution of older age-groups tended to be higher than the number of accounts they hold might suggest.
- Compared with betting, all gaming products were more likely to be used by players who lived in areas with higher levels of deprivation:
 - Nearly 40% of bingo players and nearly 35% of instant win players resided in the 20% of most deprived areas. For slots, casino games and poker, the corresponding proportions were 31%, 28% and 26%;
 - In terms of GGY, 39% of bingo spend originated in the 20% most deprived areas and only 6% in the 20% least deprived areas. For the other products, the corresponding figures were: slots (25% / 14%), casino (21% / 17%), poker (19% / 22%).

Patterns of gaming: Spending levels

Annual spending

- Over the year, almost 90% of accounts either won money or lost less than £500 from gaming;
- Nearly 6% lost more than £1,000, 3.2% more than £2,000 and 1.2% more than £5,000.

Session spending (each session being a separate episode of gambling)

- In 78% of all individual sessions account holders either won or lost £20 or less. This included:
 - 21.1% where the customer ended the session in profit;
 - 43.4% where player lost £10 or less, and
 - 13.3% where player lost over £10 but less than £20.
- 2.2% of all gaming sessions resulted in a spending loss of £200 or more. Though a small fraction of sessions, this still means that, over the year, there were more than 2.3 million instances of a spending loss of at least £200. We estimate that 396,910 customers (9.9% of all gaming customers) experienced such a loss at least once during the year.

Patterns of gaming: High-loss sessions¹

- Regardless of annual spending, individual sessions ending in a very high spending loss for the player have the potential to cause financial stress and may sometimes reflect out-of-control, unplanned play.²
 - 4.1% of accounts used for gaming incurred a spending loss of more than £500 on at least one occasion during the year. Across the operators, this represented 164,000 accounts;
 - 1.9% of accounts used for gaming had at least one session in the year where more than £1,000 was lost. This represented 77,000 accounts with these operators;
 - More than half of these had only one such session, but 0.6% of all accounts used for gaming had three or more sessions in the year when their spending loss exceeded £1,000.
- 84.5% of accounts with repeated high spending losses (3+ sessions of £1,000+ loss) belonged to men. The average age of the account holder was 40 and there were no differences by IMD.
- Accounts with repeated high-loss sessions lost all or most (more than 80%) of their money during these sessions while playing:
 - Casino games (48.0%);
 - Slots (45.2%); and
 - Poker (2.4%).
- Relative to the numbers of accounts that included these activities (slide 27), casino games appear to have generated the highest proportion of repeated high-loss sessions.

¹ The Gambling Commission introduced new guidance for high value customers in September 2020 which may mean that the current gambling landscape is different to what reported here.

² <https://www.begambleaware.org/sites/default/files/2020-12/the-role-of-stake-size-in-loss-of-control-in-within-session-gambling.pdf> (Accessed 03.03.2021).

Patterns of gaming: Session length

- Long sessions (more than three hours with no break longer than 15 minutes) is considered a marker for problem gambling in land venue settings (Delfabbro et al, 2016) ¹.
- We investigated the incidence of long sessions in online gaming for each game type, looking at sessions where only one category (e.g., slots but not bingo) was played:
 - In poker (excluding tournament poker), we estimate that 1.47% of all sessions lasted more than 3 hours, 1.33% in bingo-only sessions and 0.75% in slots-only sessions.
 - However, in terms of absolute numbers, slots games accounted for the majority (70.3%) of 3-hours+ sessions (where we are considering only sessions devoted to one activity).
- We estimate that across the operators, this translates into 158,000 accounts having played a slots-only session that lasted over three hours on at least one occasion.
 - For 54% of these there was only one such session in the year, 18% had two, 9% had three, only 3.6% 12 or more;
 - For other games the picture was similar. Lengthy sessions as a regular feature of online gaming behaviour is therefore rare.
- Turning to slightly shorter timespans, more than 93% of slots-only sessions lasted less than one hour and about 98% less than two hours:
 - Across the other gaming activities, in no case did more than 4% of sessions last over 2 hours.
 - This means that long sessions represent an atypical behaviour.

Patterns of gaming: Accounts with largest spending losses

- As in betting, a small group of accounts generated a large proportion of the GGY:
 - 5% of virtual casino accounts with the highest annual stakes accounted for 82% of the GGY;
 - For live casino and slots, the corresponding figures were 74% and 70%;
 - Concentration was less in bingo, where the 5% of accounts with the highest annual stakes contributed 61% of the GGY.
- Most accounts used for gaming spent small amounts, but 3.2% lost more than £2,000 and 1.2% lost more than £5,000:
 - Although the proportion of account holders who lost in excess of £5,000 was low, this represented more than 47,000 accounts at these operators;
 - 74% of these accounts were held by men.
 - 26% of those with spending losses between £5,000-£9,999 and 20.3% of those with spending losses between £10,000-£19,999 lived in the 20% of most deprived areas.
 - Of accounts with spending losses of more than £5,000, 54% incurred all or most (more than 80%) of their spending loss playing slots and 28% incurred all or most (more than 80%) of their spending loss playing casino games. Nearly all the remainder built up their losses over a spread of products.

Patterns of gaming: Speed of play in online slots (I)

- In early 2021, The Gambling Commission announced that licensees would shortly be obliged to introduce constraints on the speed at which online slots games could be played, with the game cycle to be at least 2.5 seconds and auto play (a feature which allows very fast play since no buttons have to be pressed) no longer to be available;
 - The enhanced protections will need to be fully implemented by online operators by 31 October 2021..
- Survey work for the Gambling Commission during December 2020 found use of autoplay to be common among online slots players: 41% of 358 respondents indicating that they had used autoplay in the preceding 12 months; a further 10% said they used it in an earlier time period;
- Our data confirmed that use of autoplay is likely to have been common among online slots players;
- In future, the maximum number of spins per minute (which will have to be from manual play) will be 24. We looked for evidence in our historic data of fast play defined as play with an average of 30 spins or more per minute during a session.

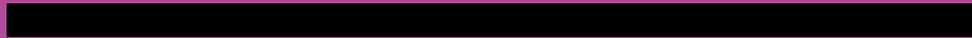
Patterns of gaming: Speed of play in online slots (II)

- 73% of those who had played online slots during the year had recorded a speed of at least 30 spins per minute during at least one 15-minute session:
 - The profile of these players was not strikingly different from that of all slots players.
- When we looked for whole sessions where slots had been played at an average speed of 30 spins per minute or more, the harvest of players was very much smaller:
 - Only 1.55% of all slots players had had one or more sessions at this pace.
- Using this metric runs the risk of picking up false positives from short one-window sessions where we assume play to have been 7.5 minutes but it will have been longer in some cases; Nevertheless, it appears to identify a distinctive player group in terms of propensity to gamble relatively heavily:
 - We estimate that 23.9% of this group lost more than £2,000 from all their 'gaming' activities during the year; this compares with 3.2% as the proportion of all gaming accounts which lost more than £2,000 in the year.

Patterns of gaming: Late night play

- The average number of accounts active at any minute peaked around 10 p.m. and declined quite quickly thereafter. On an average day we estimate that in the population of all customer accounts with these operators, 4,000 were used for gaming at 2 a.m.
- A session is defined as “late night” if it started between midnight and 5.59 a.m. or if it finished between 2 a.m. and 5.59 a.m. (or both).
- Late night play was associated with greater spending intensity (average loss-per-minute) in the case of both live and virtual casino games and somewhat elevated intensity in slots:
 - Across all live casino sessions lasting up to 1 hour, mean spend per minute was £1.20, but it was £1.75 for those which were late night. For virtual casino play, corresponding figures were 91 pence/ £1.07;
 - Across all live casino sessions lasting more than 1 hour, mean spend per minute was 71 pence, but it was 94 pence for those which were late night. For virtual casino play, corresponding figures were 64 pence/ £1.32;
 - Mean spend per minute across all slots-only sessions lasting up to 1 hour was 68 pence per minute, but it was 76 pence in late night sessions. For sessions lasting more than 1 hour the corresponding figures were 15 pence and 23 pence.
- On the other hand, for very long (more than 4 hours) casino sessions involving the early hours, average spend intensity was negative, i.e., the player won:
 - This suggests that many very long sessions at night had been extended because the player was winning.

Patterns of Play: Overall activity of online gamblers



4

Overall activity of online gamblers

- In the preceding section, we examined first the features of gambling behaviour among online bettors and then features of gambling behaviour among online consumers of gaming products (predominantly slots and casino games).
- In this section, we bring together spending in both sub-sectors and consider account holders' spending on gambling across the complete range of online gambling products:
 - Analysis is based on 139,152 accounts;
 - Relative to preceding sections, the analysis is subject to additional caveats because the participating operators capture a greater share of the online GB betting market than of the online gaming market;
 - This means that the level of spending on betting relative to that on gaming is overstated compared with that which holds across the whole GB population.
- The results are illustrative primarily of the participating operators, but it is plausible that some insights have wider applicability:
 - For example, the substantial increase in profit for an operator if the account holder takes part in both betting and gaming rather than just one of them, and the differences between men and women in the distribution of spending between betting and gaming products.
- 60.9% of accounts were used only to bet and 14.0% were used only for gaming activities. 25.1% of accounts were used for both betting and gaming activities ('mixed' accounts). Though only about one-quarter of accounts were used for both, these accounts provided more than half (55%) of GGY.
 - GGY per account was £135 for betting-only accounts, £296 for gaming-only accounts, and £602 for 'mixed' accounts.

Patterns of betting and gaming: Demographics (I)

Average spending loss over the year from all gambling tended to increase strongly with age:

- Under-25s held 20.7% of accounts and contributed 8.8% of total GGY. This reflected low levels of activity and spending.

In every age group, men on average spent more on online gambling than women:

- Based on cases where gender was known, men held 73.8% of accounts and contributed 83.6% of GGY;
- Average annual spend on all gambling by men increased with age from £88 in the youngest age group to peak at £606 in the 55-64-year-olds age range (and was only a little lower for 65+ year olds);
- Women's mean spend on gambling also increased with age though in every age group they were lower than for men.

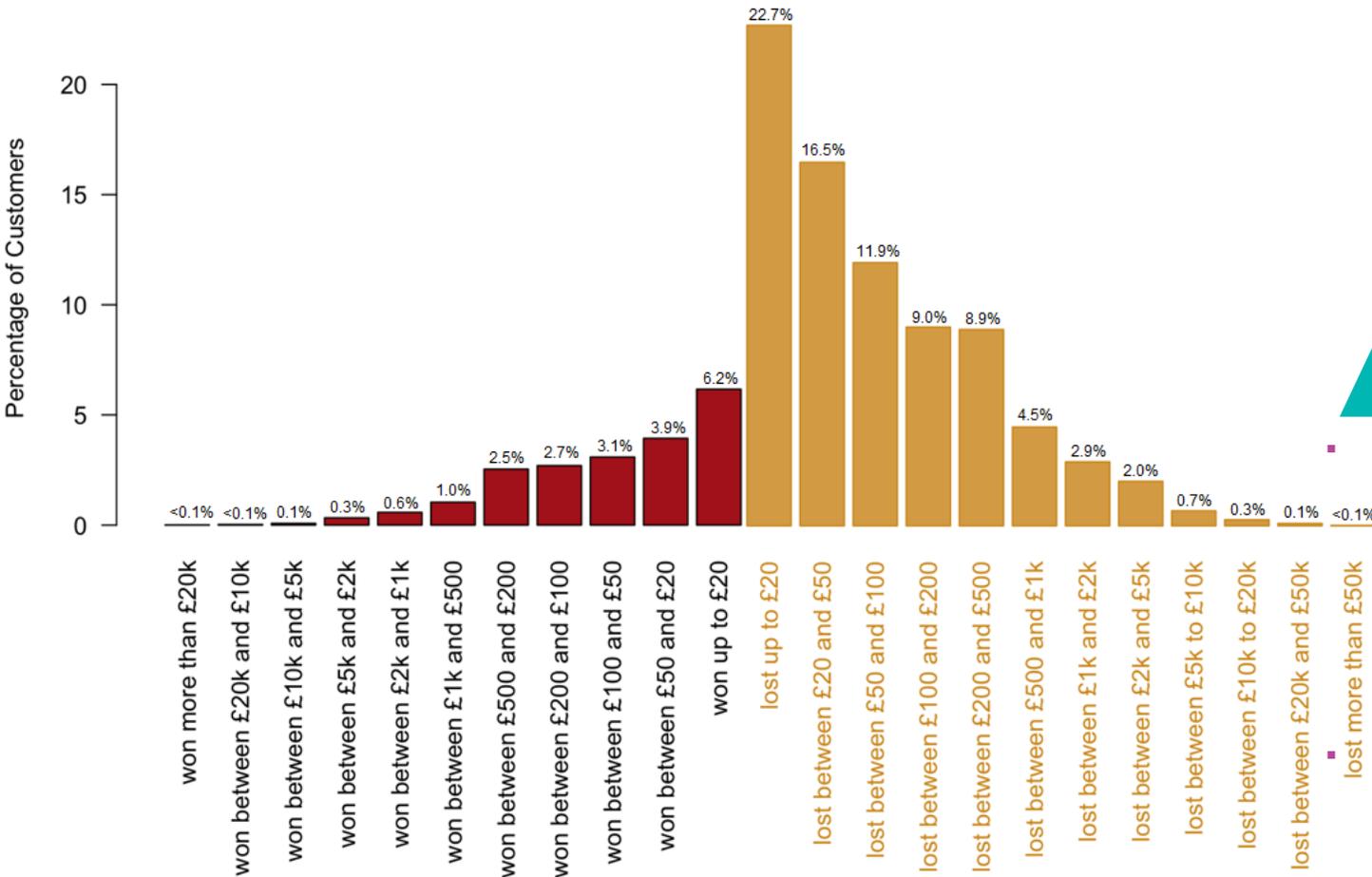
There were substantial differences in how men and women spent their money gambling: particularly for older age groups. Betting products appeared to be typically more favoured by men and gaming products by women:

- On accounts held by men, 53.9% of spending was on betting and 46.1% on gaming activities;
- On accounts held by women, 17.3% of spending was on betting and 82.7% was on gaming activities.

Patterns of betting and gaming: Demographics (II)

- Participation in any online gambling was higher, the more deprived an area.
 - Residents of the 10% most deprived areas held 11.7% of accounts and those who lived in the 10% least deprived areas held 8.2% of accounts.
- Mean gambling spend per account (and other metrics such as mean gambling days) varied little across IMD deciles:
 - Average annual spend always fell within the range £254-£294 and there was no discernible pattern across deciles.
- The split of that spending between gaming and betting varied, with some tendency, across the whole IMD range, for gaming to account for a higher share in more deprived areas:
 - In the 10% least deprived areas, gaming had a 39.0% share, but it was 47.2% in the 10% most deprived areas. From earlier analysis of gaming products, this pattern is driven by two gaming products in particular, slots and bingo.

Distribution of total spending (wins and losses) across accounts



20.5% of accounts won overall, while 79.5% made a spending loss.

In more than 80% of accounts the customer lost less than £200 over the year and 94% lost less than £1,000 over the full year.

3.1% of accounts had spending losses of more than £2,000 and 1.1% had spending losses of more than £5,000.

- Of those that lost £5,000 or more over the year, 50.5% incurred all or most (>80%) of their spending losses from betting and 38.3% incurred all or most (>80%) of their spending losses from gaming. The remaining 11.2% accumulated their spending loss from a more mixed spread of betting and gaming activities.

- We estimate that the operators had more than 111,000 accounts with spending losses over £5,000, with the average age of account holders in early-to-mid-forties and 84% being men.

**Patterns of play:
Use of safer gambling
tools**

5

Background

- A feature of online gambling is that the online environment allows gambling self-management tools to be offered to players and behavioural tracking to be used by operators to identify potentially harmful play. Players can be offered tools to help them to keep track of and better control their gambling. Tools available to the customers were:
 - **Reality checks:** The customer can opt to receive pop-up reminders of how long he or she has been playing;
 - **Deposit limits:** Customers can set up a hard cap on the amount allowed to be deposited into their accounts;
 - **Time-out/ self-exclusion:** GB licensed operators are required to offer customers the facility to exclude themselves from gambling with the operator on a temporary or permanent basis.
- Operators can also apply behavioural tracking to monitor each customer's gambling and flag instances where patterns indicate a risk of present or potential future gambling harm. Appropriate interventions can then be attempted:
 - **Social responsibility contacts:** Operators make 'social responsibility contacts' with customers whose pattern of gambling gives cause for concern.

Account tools (I)

Reality checks

- Holders of 0.9% of accounts accessed the reality check facility during the year by setting it up or modifying a previous setting;
- Of all the reality check events at these operators, 73% were set-ups and 19% cancellations (so use was growing). Of the remainder, more saw the customer ask for more frequent reminders than ask for less frequent reminders;
- 13.3% of those who set up a reality check during the year cancelled it during the year;
- Among those who were part of the reality check scheme, 13.2% lost more than £1,000 over the study year and 9.3% lost more than £2,000. Among all account holders, the corresponding figures were 6% and 3.1%. The use of reality checks was therefore disproportionately high amongst those who spent more on gambling.

Deposit limits

- 21.5% of accounts made use of the facility to set deposit limits. Betting and gaming accounts were equally likely to have used the facility and those who did were spread across accounts at all levels of annual spending;
- Across all occasions where a limit was set, 35% chose a daily limit, 32% a weekly limit and 33% a monthly limit;
- Use of deposit limits appears to have been spread across all spending levels.
- In more than one-third of the cases where a limit was set, it was in excess of £50,000 monthly equivalent. These account holders were very numerous relative to the number who gambled at levels where they would be likely to need buffers of this size. Some customers even set limits in the millions of pounds.

Account tools (II)

Time-outs

- 2.5% of accounts used a time-out tool at least once during the year and a significant proportion of these used it twenty or more times;
- Accounts which applied time-outs were disproportionately likely to be those that were used for both betting and gaming activities and to spend more money gambling than average;
- Their mean spend over the year was £865 and 11.2% lost more than £2,000. Both these figures exceed corresponding estimates for all accounts.

Self-exclusion

- Self-exclusion was applied to 2.3% of accounts during the one-year period; half of these chose to self-exclude for five years or more;
- Accounts that were used only in betting were much less likely to apply to self-exclusion than those involved in gaming. The probability of self-exclusion was highest for accounts that were used for both;
- Their mean spend over the whole year was £931 and 10.2% lost more than £2,000. As these players self-excluded, their gambling year was always shortened (at least with the operator), thus these numbers indicated that those who self-excluded often did so after incurring a financial loss.

Operator interventions

Social responsibility contacts

- Operators make social responsibility contacts with customers whose pattern of gambling gives cause for concern. 84% of these contacts were made by e-mail;
- 3.9% of account holders received at least one such contact during the year;
- More than 60% of customers receiving a contact were customers who engaged in both betting and gaming even though only one-quarter of all accounts were used for both;
- 35.5% of all accounts which ended the year with a cumulative spending loss in excess of £2,000 had received a contact during the year (equivalent to 113,000 accounts).

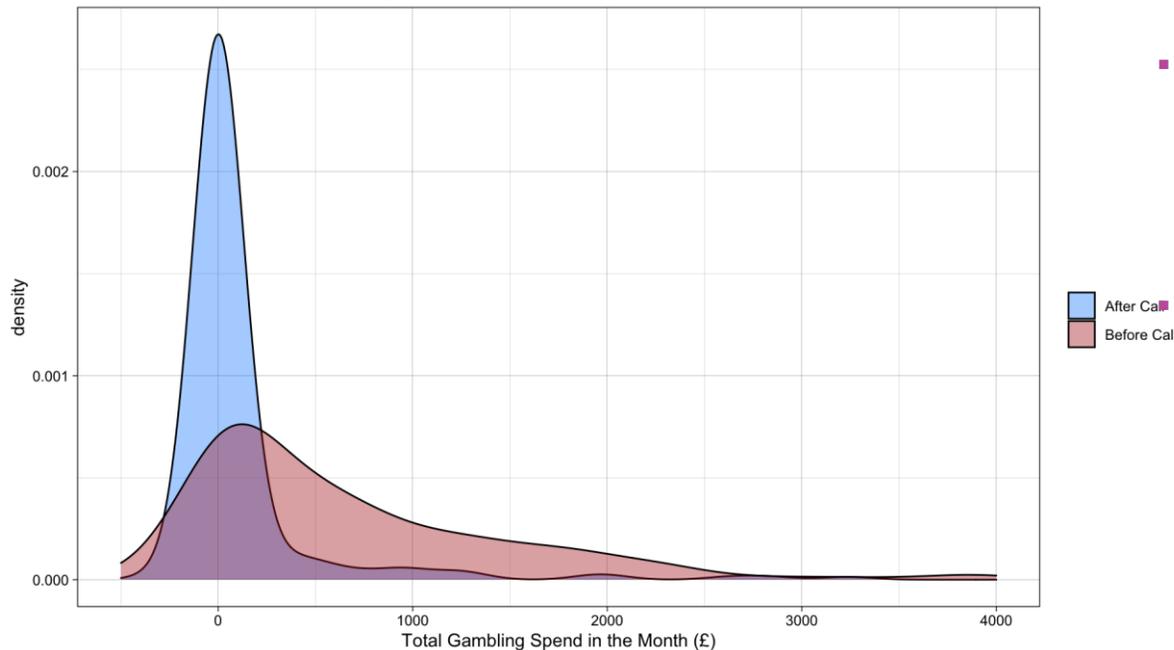
Social responsibility contact by telephone call

- A contact by telephone call may signify an escalated case where contact by e-mail has not been followed by behaviour modification;
- 0.13% of all customers were contacted by telephone during the year. 16% of all those contacted were betting-only accounts, 62% were gaming-only accounts and 22% participated in both types of gambling. Gaming activities rather than betting activities were therefore much more likely to trigger the highest level of intervention by the operator;
- 0.84% of accounts which ended the year with a cumulative spending loss of more than £2,000 had received a telephone contact during the year.

Operator interventions: Impact of telephone call (I)

- Finally, we focus on telephone calls made to customers who were of concern to the operator.
- Here we consider only the first call made to a customer during the year of the data; in some cases, there may have been telephone contact prior to the data year.
- We looked at various metrics for a *one-month window* either side of the telephone contact.
- The following plot shows the distribution of gambling spending losses among those who received a call, for both the month before and the month after the contact.

Distribution of Total Gambling Spend One Month Before and One Month After Safer Gambling Call from Operator

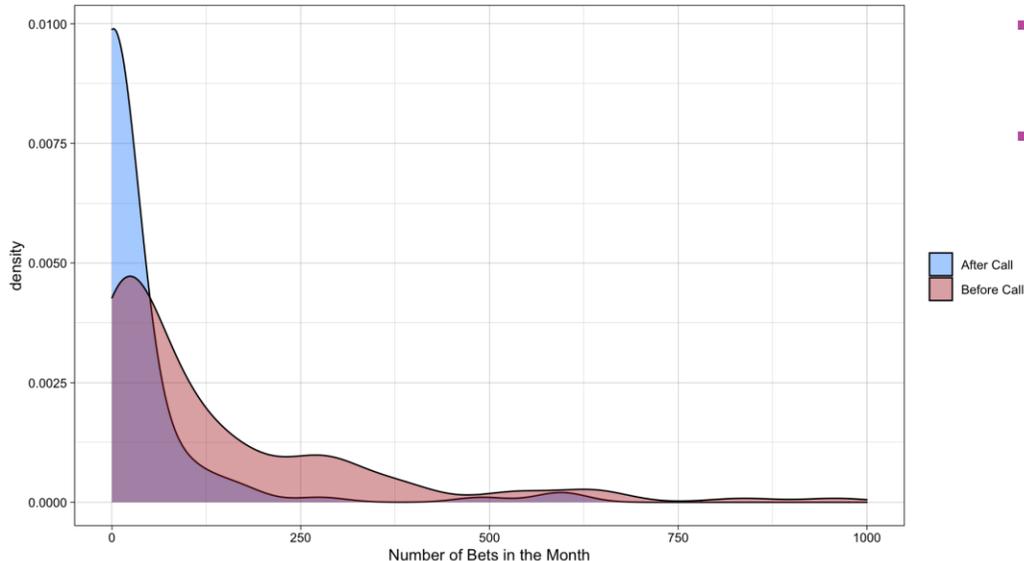


- Some gamblers win money and so there is a negative section to the horizontal scale (which records all gambling spend).
- In the 'after' distribution, the peak at zero will reflect that some recipients of a call will have abstained from gambling altogether in the following month (e.g., they may have decided to self-exclude).

In the positive part of the spend range, the picture is one of substantial moderation in the size of spending losses, reflected in higher frequency of “small” monthly losses and a lot lower frequency of “high” monthly losses.

Operator interventions: Impact of telephone call (II)

Distribution of Number of Bets One Month Before and One Month After Safer Gambling Call from Operator



- This plot shows the distribution of the number of bets placed in each one-month window.
- Before the call, there are customers who placed zero bets (i.e., in that month, or often for the whole year, they were gaming-only players); after the contact, there are many more zeros, because recipients of a call have ceased to bet; to the right of zero, comparing the distributions reveals a strong tendency towards placing fewer bets in the first month after the intervention.

- At first sight these results suggest a substantial change in behaviour following a phone call. However, algorithms flag customers for this intervention if they have spent either untypically heavily by the standard of all customers or untypically heavily by their own past standards. In either case, one would expect some *regression to the mean*, i.e., it would be expected that a high proportion of call recipients would have moderated their behaviour with or without the call.
 - An examination of the effects on behaviour of various interventions is outside the scope of the present project.

Use of credit cards and safer gambling

- A credit card was used at least once in the year to make a deposit in the case of 8.7% of accounts (and more than once in the case of 5.9% of accounts);
- Accounts used for gaming were a little more likely than accounts used for betting to have featured use of a credit card;
- 5.7% of the total deposited into accounts was paid by credit card;
- Use of credit cards was associated with patterns of gambling and use of safer gambling tools:
 - 12.0% of those who used deposit limits during the year deposited with a credit card during the year (and 7.8% used a credit card more than once). Thus, those placing limits on their deposits were more likely to use a credit card.
 - 19.8% of those who received a contact from the operator during the year used a credit card more than once during the year. They were more than three times as likely to have been contacted than those who did not use credit cards and they were more than twice as likely to have been contacted through a telephone call.
- Those who recorded big wins and those who lost most heavily over the year were more likely to use a credit card, but it was much more pronounced for those with highest spending losses:
 - Of accounts with spending losses of more than £2,000 over the year, 23.2% used a credit card;
 - Of accounts with spending losses of more than £5,000 over the year, 26.2% used a credit card.

Patterns of play: Summary and future directions

6

Betting summary

- Pre-match football, in-play football and horseracing betting were the principal online betting activities and accounted for most of the account spend from all betting;
- The online betting sector derives an estimated 94% of its revenue from men because many more men than women participate, because they place many more bets per account, and because their typical stake is higher;
- Most accounts were used moderately:
 - 84.5% spent less than £200 over the full year;
 - For 64% of accounts, the average number of bets per day for days when they were betting-active was less than three.
- A minority of accounts were used extensively:
 - The 5% of accounts with the highest spending losses generated 86% of GGY;
 - For 1.4% of accounts, an average betting day featured more than twenty separate bets;
 - 0.45% of accounts involved spending losses that were more than £5,000 across the year.

Gaming summary

- Slots and casino games were the principal online gaming product used on participating operators' sites, and accounted for most of the account spend:
 - Most of the accounts used for poker and casino games and nearly two-thirds of accounts used for slots belonged to men;
 - For all products, but especially bingo, the player base was drawn disproportionately from more deprived areas;
 - Participation in online gaming was highest in the 25-34 age group, which represented 16.9% of the British population, but which held 36.3% of accounts used for gaming and contributed 27.4% of GGY;
 - Accounts with repeated high spending losses (3+ sessions of £1,000+ loss) belonged to men on 84.5% occasions. The average age of the account holder was 40.
- As in betting, operator revenue from gaming depended to a large extent on a small number of high-volume accounts;
- Late night play was associated with significantly greater spending intensity (average loss-per-minute) in the case of both live and virtual casino games and somewhat elevated intensity in the case of slots.

Use of safer gambling tools summary

- The available responsible gambling tools were accessed with a different frequency depending on the tool:
 - The reality check events were accessed the least during the year by setting it up or modifying a previous setting; the majority of which were set-ups;
 - Accounts with betting and gaming customers were equally likely to have used deposit limits and those who did were spread across accounts at all levels of annual spending;
 - Time-outs were disproportionately likely to be used by those who engaged in both gaming and betting activities and who spent more money gambling than average;
 - Half of these chose to self-exclude for five years or more with betting customers less likely to self-exclude than those who took part in gaming activities.
- Social responsibility contacts were made with customers whose pattern of gambling gave cause for concern:
 - Gaming activities were much more likely than betting activities to trigger the highest level of intervention by the operator.
- Use of credit cards was associated with patterns of gambling and use of safer gambling tools:
 - Those who recorded big wins and those who lost most over the year were more likely to use a credit card, but it was much more likely for accounts with highest spending losses.

Future directions

Despite its limitations, the data set presents an unprecedented source of information on how people in Great Britain gamble online:

- It is among the largest and most detailed data sets from online gambling ever to have been made available for analysis by researchers and certainly the richest in describing online gambling behaviour in Great Britain;
- It opens significant research possibilities including the study of individuals' gambling trajectories over a year (which was beyond the scope of the present report);
- The second phase of *Patterns of Play* will offer the opportunity to learn much more, because data from the survey of online gamblers will provide information about individuals that can be linked to their gambling activity as recorded in our data set.
 - Topics covered in the survey will include offline (and online) gambling behaviour, the number of online gambling accounts people hold, as well as more detailed socio-demographic data.

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