Gambling behaviour: What can bank transaction data tell us? A feasibility study

Part 2: Analysis of HSBC UK customer data

THE BEHAVIOURAL INSIGHTS TEAM

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1. Executive Summary

Great Britain is home to one of the largest gambling markets in the world. Indeed, if you were to encounter a British adult at random the chances are almost 50:50 that they would have gambled in the last four weeks, if you include the National Lottery. As well as being a popular pastime, the gambling industry is a significant contributor to the British economy.[1]

The majority of people who gamble do so without experiencing significant negative effects. However, of those who gamble, a small but significant proportion are considered 'at risk' of experiencing gambling-related harm. For some, the negative consequences of their gambling are so serious and frequent that they may be classed as experiencing pathological problem gambling'.[2]

Much of the existing research about gambling in Britain and gamblers' behaviours comes from survey data and qualitative research. These kinds of data are useful but have several limitations, such as reticence on the respondents' part to admit to more severe problems. Real-world behavioural datasets can overcome some of these barriers, but despite their potential they remain largely inaccessible to researchers.

GambleAware's Patterns of Play programme of research is a wide-ranging endeavour to use behavioural datasets to build a more accurate picture of the ways people gamble, and the potential impact it has on them. As part of this programme, bank transaction records were identified as offering the potential for new insights into tackling gambling harms. The Behavioural Insights Team (BIT) embarked on a project to investigate the feasibility of working with banks, and their data, to those ends.

> **The findings of this project are delivered in two parts. Here, in Part 2, we detail our work with HSBC UK. Part 1 of this report** — **published in parallel with this part**— **details our work with Monzo.**

Project Background (Chapter 2)

This work aims to better understand the kinds of financial impacts experienced by sampled HSBC UK customers that gamble, and to shed new light on what bank transaction data can, and can't, tell us about gambling behaviour.

What did we do, and how did we do it? (Chapter 3)

BIT partnered with HSBC UK on the basis of an agreed analysis plan. HSBC UK conducted the analyses internally and shared the outputs with BIT. HSBC UK's sample

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[1] HM Revenue and Customs. (2021). UK Betting and Gaming Commentary. Available from: https://www.gov.uk/government/statistics/uk-betting-and-gaming-statistics/uk-betting-and-gaming-commentary-september-2020

[2] Gambling Commission, GambleAware, Responsible Gambling Strategy Board. (2018). Measuring Gambling Related Harms. Available from: http://www.gamblingcommission.gov.uk/PDF/Measuring-gambling-related-harms.pdf

included any customers who had made a transaction in the gambling sector between March 2019 and February 2020. In total, 1.5m HSBC UK customers were included in the sample, which represents approximately 19% of HSBC UK's customer base. Gambling transaction data for these customers was drawn from March 2016 – February 2020.

HSBC UK created four customer segments to describe typologies of overall gambling behaviour. HSBC UK assigned these segments the labels of 'In Control', 'Unsure', 'Concerning' and 'Very Concerning' based on monthly gambling deposits and ratio of gambling deposits to disposable account income. Owing to the overall low level of impact that the Unsure segment had on the data, BIT decided to combine it with the In Control segment.

The average HSBC UK customer in the sample was aged 42, showed a yearly account income of £47,000 and deposited £93 a month on gambling over the total observation period, or £148 a month when looking only at months where gambling occurred.

We explored three research themes using the data and analyses provided by HSBC UK:

1. Who gambles, how much do they gamble, and how often?
2. How is gambling related to account income and spending?
3. How is gambling related to financial standing and credit use?

Our key findings

Theme 1 - Who gambles, how much do they gamble, and how often? ([Chapter 4])
Men were overrepresented in the Very Concerning and Concerning segments, and 18 – 30 year olds were overrepresented in the Very Concerning group. More than half of customers in the Concerning and Very Concerning segments gambled with more than three operators.

In Control customers had average monthly gambling deposits of £17 and 1.2 transactions per month. The Concerning group had average gambling deposits of £574 a month and an average of 15.6 transactions. The Very Concerning group averaged £2,202 of gambling deposits a month and 35.6 transactions.

Theme 2 - How is gambling related to everyday spending, and account income? ([Chapter 5])
The Concerning and Very Concerning groups had similar average monthly account incomes, and both were higher than the In Control Group. The In Control Group had, by definition, a low ratio of gambling deposits to disposable account income, but almost half of their income went on essential spending.

Very Concerning customers had a very high gambling deposit to monthly disposable account income ratio. However, this group also had the highest account income, and ended each month with just over £200 in leftover income, suggesting that gambling deposits may have been within their means.

The Concerning group, on the other hand, had a lower ratio of gambling deposits to disposable account income but a notably higher average spend on essentials. Overall, this group would be expected to spend beyond their monthly account income with HSBC UK.

Analysing gambling deposits around 'payday' proved difficult as not all customers received their income on regular, predictable dates. We investigated trends across different points in a month as a proxy but this did not yield insightful findings.

Theme 3 - How is gambling related to financial standing and credit use? (Chapter 6)
Analysis of total financial standing across HSBC UK accounts showed that Very Concerning gamblers had greater movement down through total wealth bands over the observed time period compared to Concerning gamblers.

A high proportion of those in the Very Concerning segment that had low levels of unsecured lending — less than £50 in March 2019 — still had less than £50 of unsecured lending in February 2020. However, those in the Very Concerning segment that had higher levels of unsecured credit to begin with were more likely to have moved into a higher band over the same time period.

Summary findings

In Control N = 1,389,086	Concerning N = 115,531	Very Concerning N = 23,719
Theme 1: Socio-economic characteristics		
● Largest proportion (29%) aged 31 – 40 years ● Age groups closely match that of full sample ● 60% male ● Average account income of ~£33,000 ● Average monthly account balance of ~£2,000	● Largest proportion (33%) aged 31 – 40 years ● Younger age groups are somewhat over-represented (~+12%) vs. full sample. Oldest age groups are under-represented (~-17%). ● 77% male ● Average account income of ~£56,000 ● Average monthly account balance of ~£4,000	● Largest proportion (32%) aged 31 – 40 years ● Younger age groups are substantially over-represented (~+22%, and older age groups substantially under-represented (~-21%) vs. full sample. ● 76% male ● Average account income of ~£57,000 ● Average monthly account balance of ~£2,200
Theme 1: Overall gambling behaviour		
● Gambles with an average of just under 2 operators ● Deposits on average £17 per month into gambling accounts ● Typically around 1 gambling transaction per month ● Gambles in around 17% of weeks and 40% of months per year ● On average, deposits around 2.1 times more into their gambling accounts on weekends vs. weekdays	● Gambles with an average of around 4 operators ● Deposits on average £574 per month into gambling accounts ● Typically around 16 gambling transaction per month ● Gambles in around 46% of weeks and 66% of months per year ● On average, deposits around 1.5 times more into their gambling accounts on weekends vs. weekdays	● Gambles with an average of around 6 operators ● Deposits on average £2,202 per month into gambling accounts ● Typically around 36 gambling transaction per month ● Gambles in around 54% of weeks and 73% of months per year ● On average, deposits around 1.3 times more into their gambling accounts on weekends vs. weekdays

Theme 2: Spending behaviour and gambling relative to account income		
● Average monthly essential spend of £1,831 ● Average monthly non-essential spend of £2,161 ● Average monthly disposable account income of £2,011 ● Spends <1% of disposable account income on gambling per months	● Average monthly essential spend of £1,555 ● Average monthly non-essential spend of £3,495 ● Average monthly disposable account income of £3,075 ● Spends 19% of disposable account income on gambling per month	● Average monthly essential spend of £986 ● Average monthly non-essential spend of £3,570 ● Average monthly disposable account income of £3,776 ● Spends 58% of disposable account income on gambling per month
Theme 3: Financial standing and credit use		
● Most recent data indicated average total wealth of £11,976 ● Lower proportions moved down a wealth band in 12 months ● Make up 90% of the customers in the sample (62% of the group) who have an arranged overdraft ● Typically incur £9 of fees per month	● Most recent data indicated average total wealth of £12,926 ● Lower proportions moved down a wealth band in 12 months ● Make up 8% of the customers in the sample (69% of the group) who have an arranged overdraft ● Typically incur £14 of fees per month	● Most recent data indicated average total wealth of £6,318 ● Higher proportions moved down a wealth band in 12 months ● Make up 2% of the customers in the sample (76% of the group) who have an arranged overdraft ● Typically incur £17 of fees per month ● Higher proportions of customers show movement upwards into higher bands of unsecured lending over 12 months

Final reflections (**Chapter 7**)

The breadth of insights we report here attest to the usefulness of bank transaction data for examining gambling behaviour within the context of a person's broader financial life.

Working with different banks has meant varying approaches to how data was gathered and analysed, including how customers were categorised across Parts 1 and 2 of this report. A key overarching reflection from this is how different approaches may create different signals for potential harm. To illustrate: typical markers, such as absolute gambling spend, and frequency were taken as key ways of distinguishing gambling segments in the current data. Yet, perhaps the most significant finding from our work with HSBC UK was that gambling deposits in the context of overall income and expenditure reveals a nuanced picture of potential harm. Our analysis indicates that the Concerning customers, in particular, may need support to control their gambling in order to prevent spending beyond their means. For Very Concerning customers, while exhibiting very high gambling spends, there was evidence to suggest that this may be within the means of some of those sampled. This work shows that more needs to be done to understand how best to utilise existing data — and how to supplement it — in order to create more robust and roundly-considered categorisations of customers' gambling behaviour.

Our work with HSBC UK is characterised by our ability to look at gambling behaviour in the context of a fairly detailed financial profile — account income, expenditure, overdraft use and financial standing over time. Our work with Monzo was most insightful in terms of the relationships between gambling behaviour and innovative tools like savings pots and gambling blocks.

A core aim of our overall project with HSBC UK and Monzo was to assess the feasibility of using bank transaction data to research gambling behaviour and potential harms. The insights gained from this project are encouraging in this regard. However, transaction records have limitations, and data from a single bank is unlikely to offer a full picture. There remains an opportunity for researchers, and other stakeholders involved in gambling harm to develop a core operating model on the basis of the types of data available from banks, and to establish evidence-based thresholds.

2. Project Background

2.1 About this project

As part of GambleAware's Patterns of Play programme of research, the Behavioural Insights Team (BIT) was commissioned to explore the feasibility of using bank transaction data to better understand how gambling behaviour fits into a person's wider financial circumstances. BIT partnered with two banks: Monzo, and HSBC UK. The project aims to better understand the kinds of financial impacts experienced by customers who gamble, and to shed new light on what bank transaction data can, and can't, tell us about gambling behaviour.

The findings of our analysis are published across two reports, one for each banking partner. Here, in Part 2, we detail our work with HSBC UK. Part 1 of this report — published in parallel with this part — details our work with Monzo.

In Part 1 of this project, we analysed transaction data for 10,000 Monzo customers, covering on average ten months' worth of transactions. The sample of Monzo customers was constructed to comprise around 50% customers that had used Monzo's gambling block, allowing us to investigate block usage. With HSBC UK we had access to a larger sample of 1.5 million customers, covering 54m gambling transactions over four years. HSBC UK data also permitted insights into customers' account income, and use of credit. in contrast to Monzo, however, were not provided with details of customers' use of their gambling block tool.

Bank transaction records potentially offer a unique window into peoples' gambling behaviours that would otherwise be difficult to observe using other research methods. Despite the prevalence of gambling (around 47% of people in the UK have gambled in the previous four weeks[3]), there is little evidence about what this behaviour looks like at an individual level. This is because research has typically used self-report surveys where prevalence and frequency of gambling may be underreported due to social desirability and recall biases. Research has also been conducted with gambling operator data, but gamblers often use more than one operator, and as such this type of research only shows part of the picture.

Bank transaction data offers an as-yet relatively underexplored set of opportunities to investigate gambling behaviour in a way that overcomes these issues. However, even these data are not a perfectly reliable source of information:

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[3] Gambling Commission. (2020). Gambling participation in 2019: behaviour, awareness and attitudes. Annual report. Available from:
https://www.gamblingcommission.gov.uk/PDF/survey-data/Gambling-participation-in-2019-behaviour-awareness-and-attitudes.pdf

- Results may differ between banks because the characteristics of customers differ. For example, a digital-only bank like Monzo has younger customers than a more traditional retail bank like HSBC UK.
- The insights we can gain from the data depend on the tools and features offered by a bank. For example, Monzo's division of all outgoing transactions into spending categories allows it to look at other types of spending associated with problem gambling.
- The way customers use their accounts varies e.g. whether they use a particular account to receive their main income; and customers may use multiple bank accounts with different providers.

We provide a fuller discussion on the prevalence of gambling and the difficulty of researching this behaviour in the equivalent Section 2.1 of Part 1 of this report, detailing our analysis of Monzo customer transaction data.

In both this report, and our work with Monzo, customers are segmented into three groups (though segmented differently for each dataset) varying on the extent of their gambling as determined in the available data. Building these archetypal portraits of gamblers in our samples allowed us to develop a rich set of insights across major areas of peoples' financial lives, while also providing a descriptive overview of differences between each major segment.

2.2 The remainder of this report

The remainder of this report is structured as follows:

- **Chapter 3** details what we did, and how, giving an overview of how we approached working with banks for a project of this nature, and of the exact transaction data analysed by HSBC UK. This chapter also details our key research questions, broken down into the four major research themes of interest to the project.
- **Chapters 4 – 6** present our findings across each of the research themes we were able to explore using the HSBC UK data. Here you will find various tables, figures, and graphs detailing the data, and summary tables highlighting key findings and observations across each of the characteristic gambler profiles constructed from the data.
- **Chapter 7** offers summaries on the key insights gained across each of our four major research themes, commenting on outstanding questions for future research.

3. What did we do, and how did we do it?

3.1 Our approach to working with banks

HSBC UK, along with Royal Bank of Scotland/Natwest, Barclays and Lloyds Banking Group is one of the so-called 'Big Four' — a colloquial term used to describe the biggest banks in the UK.[4] It has 14 million retail and wealth management customers and about 14% market share in the UK in terms of current accounts.[5] Monzo is a so-called 'challenger bank' (newer to market) and one of the first app-based banks in the UK. It has 4.3 million customers as of June 2020.[6]

We approached each bank with three possible ways to partner with BIT. Monzo opted to share transaction data directly with BIT, whereas HSBC UK conducted analysis internally, based on an agreed plan, and shared the outputs with BIT.

The approach taken and agreed with HSBC UK was appropriate because a) it required less overall administrative and legal burden to launch, and b) meant analysis was conducted by HSBC UK analysts experienced with the data in question, and with access to the computing power necessary to analyse 1.5m customers' worth of data.

While there were legitimate pragmatic reasons for taking different approaches to receiving data from each bank, a drawback was that our ability to then make direct comparisons between customers was reduced. For instance, we were able to determine the customer segments using data from Monzo, whereas segments in the HSBC UK data were determined by the bank.

3.2 The data that were analysed

We approached each bank with a detailed analysis plan that listed specific variables, outcomes, and other data characteristics relevant to the research questions we aimed to answer (see Section 3.3. for more on these questions) For instance, we recommended a) compiling data that covered at least one year's worth of transactions, but preferably covering up to five; and b) including a minimum of 10,000 customers in the data. We also gave specific directions around particular types of data to compile, such as common everyday spending categories.

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[4] See for example Sky News. (2018). https://news.sky.com/story/revolut-is-uks-first-digital-bank-unicorn-11347255 New UK banks challenge dominance of 'big four'. Available from: https://news.sky.com/story/revolut-is-uks-first-digital-bank-unicorn-11347255

[5] Number of customers from HSBC UK Bank plc Annual Report and Accounts 2019 https://www.hsbc.com/investors/results-and-announcements/all-reporting/subsidiaries?page=1&take=20&company=hsbc-uk-bank-plc

Market share from HSBC UK Q4 2019 Update https://www.hsbc.com/-/files/hsbc/investors/investing-in-hsbc/investor-events-and-presentations/2019/191113-hsbc-uk-update.pdf

[6] Number from Monzo's official website

Both banking partners were able to meet our specifications to different degrees and, as a result, the final data made available by each bank differs in terms of scope, depth, and specificity.

In the case of HSBC UK we were unable to fully address research questions around particular savings behaviours (Theme 3), such as contributions to savings accounts. It was also not possible to address any research questions around HSBC UK's customers' use of the bank's gambling block function, which was deemed commercially sensitive given its relatively new product status at the outset of the project. In contrast to Monzo, however, HSBC UK's data offered greater fidelity in terms of patterns of gambling behaviour across income groups (Theme 2); and much greater insight around customers' use of overdrafts, and unsecured lending (Theme 3).

Throughout the analyses we report averages in the form of means, calculated using all of the available data. We did not have reason to believe that data points at the extremes were erroneous, and they were therefore not excluded from calculations.

3.2.1. Overview of data analysed by HSBC

3.2.1.1 General make-up of the data analysed
The data analysed by HSBC contained the following categories of information on the sampled customers:

  a) Demographic information (age, account income)
  b) Financial standing (e.g. current account balance, total wealth held in HSBC UK accounts)
  c) Gambling behaviour (e.g. gambling deposits for both online, and offline gambling; total gambling deposits over time; number of gambling operators transacted with)
  d) Banking behaviour (e.g. use of online/mobile platforms)
  e) Non-gambling spend (e.g. overall essential, and non-essential spending)
  f) Credit use (e.g. use of overdrafts, and unsecured loans; fees incurred)

Note that by 'transactions' we mean outgoings via debit/credit cards or bank transfers. The data did not capture cash transactions at gambling venues, for example, or digital transactions to gambling sites made using third party digital 'wallets' such as PayPal.

3.2.1.2 The sample of customers compiled by HSBC for the analysis
HSBC UK included any customers who had made a transaction in the gambling sector between March 2019 and February 2020. In total, 1.5m HSBC UK customers were included in the analyses, or approximately 19% of HSBC UK's customer base. This appears to be a considerably lower level of incidence compared to statistics from the Gambling Commission — which indicate that around 42% of British people have gambled in some form in the previous four weeks.[7] However, the Commission's statistics incorporate the purchase of National Lottery tickets at venues including supermarkets. The National Lottery is by far the most widely-participated in form of gambling nationally, but

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[7] Gambling Commission. (2021, February). Gambling behaviour in 2020: Findings from the quarterly telephone survey.

our data do not capture lottery tickets bought at non-gambling venues, or bought as part of other larger itemised purchases (such as a weekly shop, where instead the overall transaction would be captured by the bank as coming from a supermarket). Removing National Lottery from the prevalence statistics, the Commission estimates that around 28% of British people have otherwise gambled in some form in the previous four weeks. This figure was 21.1% for the period most closely related to the 12 month period in the HSBC UK data noted above.

Further, our data do not capture *cash-based* gambling (which is captured in the Commission's statistics). Overall, this means that our data will likely not have captured the full extent of gambling amongst the sampled customers, and will not have captured the full extent of gamblers among the HSBC UK customer base.

Gambling transaction data for these customers was drawn from the period March 2016 – February 2020, and comprised 54 million transactions totalling £1.6bn in gamblng deposits. Account income data are also based on this period. Transaction data reported for non-gambling transactions (Chapter 4) was drawn from a shorter period of March 2019 – February 2020. This timespan was constrained for efficiency reasons, owing to the relatively more complex nature of work necessary to compile the full extent of the non-gambling transactions data for the analysis.

HSBC UK confirmed that 92.4% were classed as 'primary' customers, that is customers who make at least 10 transactions from their account each month. The remaining 7.6% of gambling customers in the sample were classed as 'non-primary' by HSBC UK.

HSBC UK provided the following basic demographic data about each major category of customer as drawn from their total customer base in 2020:

Table 3.2.1.1: Basic demography of overall HSBC UK primary, and non-primary customer base (2020)

	Primary customer base	Non-primary customer base	Overall UK Population
Total proportion of customer base	48%	52%	--
Age			
<=17	0.9%	13.8%	21.1%
18-30	19%	13.5%	16.2%
31-40	22.7%	22%	13.3%
41–50	19.3%	19%	14.6%
51-64	18.8%	16.6%	18.1%
65+	19.4%	19%	16.5%
Account Income band	Majority (29%) fall in	Majority (90%) fall in	Mean salary (2018)

	the £10k − £25k band	<£10k band	£34,700
Location	18% are based in London	18% are based in London	13% are based in London

Notes: 'Income' is based on average total monthly credits to the customer's account, and does not solely reflect salary. HSBC UK customers may have additional incomes that are received elsewhere. Comparative age group figures for the UK are based on Office for National Statistics (ONS) data[8], but it should be noted that ONS age groups are slightly different and capture 18 − 29 years old, 30 − 39 years old, 40 − 49 years old, 50 − 64 years old, and 65+ years old. Comparative UK mean salary data comes from UK government data.[9] Comparative UK location data for London is based on a) latest ONS estimates of the UK population[10], and b) population data for London held by the European Commission, accessed via Data Commons.[11]

The average customer in the data HSBC UK analysed for this project had the following characteristics:

Table 3.2.1.2: Characteristics of the average HSBC UK customer in the sample of 1.5m customers (covering March 2016 − February 2020)

Characteristic	Mean
Age	42
Yearly account income	£47,000
Monthly current account balance	£3067
Number of operators transacted with	1.82
Monthly gambling deposits	£142 across only months with gambling £93 across all months on record
Weekly gambling deposits	£62 across only weeks with gambling £22 across all weeks on record
Daily gambling	£37 across only days with gambling £3 across all days on record
No. of monthly gambling transactions	4.14 across only months with gambling 2.86 across all months on record
No. of weekly gambling transactions	1.82 across only weeks with gambling 0.6 across all weeks on record
No. of daily gambling transactions	1.19 across only days with gambling 0.1 across all days on record

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[8] UK Government. (2020, August 17th). UK population by age groups.
[9] UK Government. (2020, June 20th). Distribution of median and mean income and tax by age group and gender, tax year 2017 - 2018.
[10] Office for National Statistics. (2020, June). Population estimates for the UK, England and Wales, Scotland and Northern Ireland: mid-2019.
[11] Data Commons. (2019). Greater London.

The data captured included any accounts showing gambling deposits. This included joint accounts, so in some cases gambling and other financial behaviour emanating from one account may reflect the behaviour of more than one customer.

3.2.1.3 Customer segments created by HSBC UK for analysis

From the available customer base of 1.5m customers, HSBC UK constructed four key customer segments that differed on the basis of their overall gambling behaviour. These four segments were:

Table 3.2.1.3: Customer segments created by HSBC UK.

	In Control	Unsure	Concerning	Very Concerning
Proportion of customers analysed	90% (1.3m)	1% (17k)	8% (115k)	2% (23k)
Monthly gambling deposits	<£200	<£200	>£200	>£200
Ratio of gambling deposits to disposable account income	<20%	>20%	<60%	>60%
Proportion of total gambling deposits in data	20% (£43m)	1% (£1.5m)	47% (£102m)	32% (£70m)

Notes: Disposable income is computed by subtracting total essential spend (see Table 4.1) from total monthly credits to the account. Monthly gambling deposits pertain to card-based transactions, and do not capture cash-based gambling spend.

HSBC UK confirmed that the threshold of >£200 gambling spend per month used to distinguish the two higher spending groups ('Concerning', and 'Very concerning') was chosen as the vast majority of customers in the sample (90%) spent less than this amount per month on gambling.

Owing to the overall low level of impact that the 'Unsure' segment had on the overall data, BIT decided to combine this and the 'In Control' group (retaining the latter group name) when presenting our findings. These three groups appear throughout the report, and we retain the segment names as created by HSBC UK.

3.3 Our research questions[12]

At the project's outset, we devised a thorough analysis plan covering four major research themes, each of which related to different aspects of a person's financial life. The themes contain secondary research questions, which further explore the theme in more detail.

Research Theme	Research Questions
Theme 1 - Gambling behaviour **Who gambles, how much do they gamble, and how?**	1. What are the demographic characteristics of gambling customers in the sample? 2. How often do people gamble, and how much? 3. Are there daily/weekly/monthly trends in gambling behaviour?
Theme 2 - Spending behaviour **How is gambling related to account income, and spending?**	1. How does spending in everyday categories vary with gambling behaviour? 2. How do gambling deposits vary relative to account income level? *(HSBC only)* 3. How do gambling patterns change (if at all) around pay days? *(HSBC only)*
Theme 3 - Savings behaviour, and overdrafts **How is gambling related to saving and credit use?**	1. Are gambling customers more or less likely to use savings pots compared to non-gamblers? *(Monzo only)* 2. Are there differences in gambling customers' savings behaviour compared to non-gamblers? *(Monzo only)* 3. How has different customers' overall financial standing changed in the past year? *(HSBC only)* 4. Are there differences in customers' use of unsecured lending compared to non-gamblers? *(HSBC only)*
Theme 4 - How do people make use of gambling block functions? *(Monzo only)*	1. Who uses gambling blocks? 2. How do customers use gambling blocks? 3. Does cash use increase whenever a gambling block is active?

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[12] Throughout the report we do not perform any statistical tests comparing group averages. This decision is driven largely by the fact that the volume of statistical tests involved would necessitate a level of correction for multiple comparisons that would likely render any individual test non-significant. This decision does limit the level of inferences we can draw from the data, but allows us to retain a broader overall scope for the investigation.

4. Theme 1 - Who gambles, how much do they gamble, and how often?

For our first research theme we investigated the overall demographic characteristics of each of the three segments in our sample of HSBC UK customers. We then explore how these different gambler groups vary in terms of overall frequency of gambling, extent of gambling (including offline vs. online gambling) and potential time-related patterns in gambling behaviour.

All gambling transactions captured in the analysis were those made using cards or bank transfers. HSBC UK categorised any transactions as gambling in accordance with standard merchant category codes established by major providers such as Visa and Mastercard.

Our sample cannot capture the full extent of gambling, or gamblers, as we might expect it to be seen in the general population. Gambling with cash, or from another account, is not captured.

4.1 What are the socio-economic characteristics of the segments in our sample?

Table 4.1.1. presents an overview of the key socio-economic details of our sample of HSBC UK customers. It should be noted that by virtue of assessing gambling via transaction records, it is predominantly customers who gamble *online* who are captured in the data.

Table 4.1.1: Demographic features of our sample of HSBC customers, by customer segment.

	In control		Concerning		Very concerning		Full sample	
	N	%	*N*	%	*N*	%	*N*	%
N customers	1,389,086	91%	115,531	8%	23,719	2%	1,528,336	100%
Age								
18-30	**299,079**	22%	**27,929**	24%	**6,915**	29%	**333,923**	22%
31-40	**402,355**	29%	**37,736**	33%	**7,511**	32%	**447,602**	29%
41–50	**307,912**	22%	**22,520**	20%	**4,136**	17%	**334,568**	22%
51-64	**255,381**	18%	**18,938**	16%	**3,534**	15%	**277,853**	18%
65+	**123,973**	9%	**8,385**	7%	**1,620**	7%	**133,978**	9%
Gender	60% male 40% female		77% male 23% female		76% male 24% female		62% male 38% female	

Account Income(£)							
Mean	£46,000		£56,000		£57,000		£47,000
Uses online banking	411,373	30%	30,267	26%	6,184	26%	447,824	29%
Uses mobile banking	961,794	69%	76,815	67%	16,605	70%	1,055,214	69%
No. of gambling operators transacted with							
Mean	1.6		4.3		5.5		1.8
SD	1.22		4.42		5.83		2.02
% customers gambling with 3+ operators	20%		56%		67%		15%
Monthly account balance (£)							
Mean	£2,070		£3,775		£2,236		£3,022

Notes: Percentages are within-segment, and may not sum to 100% due to rounding. Row shading indicates relative ranking of each group for a particular measurement, running lowest (lightest) to highest (darkest). 'Income' is based on average (mean) total monthly credits to the customer's account, and does not solely reflect salary. Gambling data cover the period March 2016 − February 2020. Non-gambling data cover the period March 2019 − February 2020.

As noted, 'account income' reflects all credits to a customer's account. This will capture regular salary/wages, but may also include, for instance, winnings from gambling. Initial observations indicate that, against the overall HSBC UK primary customer base (see table 3.2.1.1), the current sample showed noticeably higher proportions of younger adults (18 – 30s, and 31 – 40s), and lower proportions of the oldest age group (65+).

Men were overrepresented in the Very Concerning (76%) and Concerning (77%) segments compared with the proportion of men that make up all gambling customers (60%). This is unsurprising as other research shows that — compared to females — males experiencing problem gambling tend to engage in more online forms of gambling (e.g. sports betting, poker).[13] While our data cannot speak to severity of gambling at a clinical level, public health data for England, for instance, indicates that rates of problem gambling (measured via clinical measures such as the DSM-IV, and non-clinical measures such as the Problem Gambling Severity Index) are higher among men.[14]

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[13] Baggio, S., Gainsbury, S. M., Starcevic, V., Richard, J. B., Beck, F., & Billieux, J. (2018). Gender differences in gambling preferences and problem gambling: a network-level analysis. *International Gambling Studies*, *18*(3), 512 — 525.

[14] NHS. (2018). Health Survey for England 2018: Supplementary analysis on gambling. Available from:

Age distributions for each customer segment generally follow the same trends, with the largest proportions of customers in each group being aged 31 – 40 years old. This aligns with a recent report from the Gambling Commission, which showed the greatest reported online gambling behaviour amongst 35 – 44 year olds (28%), followed by 45 – 54 year olds (26%) and 25 – 34 year olds (25%).[15] The average age of any gambling customer in our sample was 42 years (SD = 14.31).

The Very Concerning segment, however, had a larger proportion of 18 – 30 (29%) year olds compared to the other segments, and to the overall proportion of this age group in the sample (22%). In fact, while the index of each age group in the In Control segment closely matches that of the equivalent age groups for full sample, the two youngest age groups over-index for each of the Concerning, and Very Concerning segments, while the three remaining age groups under-index for these segments. In particular the proportion of 18 – 30 year olds in the Very Concerning segment is 31% higher than that for the full sample. Contrastingly, the proportion of 65+ year olds is around 10% lower for the Concerning, and Very Concerning segments vs. the full sample. One possibility is that these observations are partly-driven by sample bias: younger people, for example, are much more likely to gamble via smartphones for instance, a key channel through which people gamble online.[16] Relatedly, sports betting is the most prevalent form of mobile gambling, and this is largely driven by the heavy promotion of so-called live 'in-play' sports betting via operators' smartphone platforms.[17] It is possible that the particular forms of gambling pursued by older adults may be less represented in the current data.

There still remains an interesting question of why younger customers in our sample were relatively more likely to have a higher gambling deposits and ratio of gambling deposits to disposable account income (HSBC's 'Very Concerning' definition), however. Some research has suggested that gambling via smartphones, in particular, is associated with greater signs of behavioural addiction.[18]

It is striking that more than half of customers in the Concerning (56%), and 67% of the Very Concerning segments gambled with more than three operators over the time period captured. Our data point to a positive relationship between the number of accounts held and the ratio of gambling deposits to disposable account income for the sampled customers. We can't tell from our data how the number of accounts held varies by age bracket, and if this is a contributing factor to the relatively larger proportion of 18 — 30 year olds (29%) in the Very Concerning segment. In other words, are younger people gambling more relative to income *and* holding more accounts? Gambling Commission

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https://digital.nhs.uk/data-and-information/publications/statistical/health-survey-for-england/2018/health-survey-for-england-2018-supplementary-analysis-on-gambling

[15] Gambling Commission. (2020). Gambling participation in 2019: behaviour, awareness and attitudes. Annual report. Available from:
https://www.gamblingcommission.gov.uk/PDF/survey-data/Gambling-participation-in-2019-behaviour-awareness-and-attitudes.pdf

[16] Ibid

[17] Lopez-Gonzalez, Hibai, and Mark D. Griffiths. Is European online gambling regulation adequately addressing in-play betting advertising?. Gaming Law Review and Economics 20 (6): 495-503.

[18] James, R. J., O'Malley, C., & Tunney, R. J. (2019). Gambling on smartphones: A study of a potentially addictive behaviour in a naturalistic setting. European addiction research, 25(1), 30 — 40.

participation data does suggest that older people tend to hold fewer accounts compared to those aged 44 and below. But the average number of accounts gambled with over the past 12 months is just over 2 for those aged 18 – 24 and 25 – 34 and 2.7 for those aged 35 – 44.[19]

In any case, a further interesting question raised is the relationship between relative gambling deposits and number of accounts held — do those who gamble more tend to open accounts with multiple operators, does opening accounts with more operators (for example to take advantage of offers such as free bets) encourage more gambling, or do these two effects overlap?

Customers in the Concerning, and Very Concerning segments have notably higher account incomes compared to customers in the In Control group. As we discuss later in the report (e.g. Table 5.2.1, pg. 30), while customers in the Very Concerning group spend much higher proportions of their account's disposable income (60%) on gambling, the group also has much lower monthly spend on essential outgoings. This poses a question of whether the relatively high gambling deposits we see in this group could in fact be more affordable. On the other hand, another explanation could be that where gambling deposits are high, income available for other needs is low. We were limited in our ability to draw firm conclusions on this, as the sampled customers may hold accounts with other banks into which they receive income or spend on outgoings. They may also have received additional income as winnings from their gambling, which we are also unable to account for.

4.2 How often do people gamble, and how much?

An advantage of transaction data in the context of gambling research is that it can be used to assess markers of potential harm, such as frequency and extent of gambling deposits, that are otherwise often assessed by tracking customer behavioural data on individual operator websites.[20] BIT's previous work using behavioural data from operators indicated that higher daily staking, for example, is a strong predictor of higher scores on a commonly-used scale to measure problem gambling.[21] The ability to see an array of deposits across multiple online gambling operators, as well as broader financial status and spending indicators can give a fuller picture of gambling behaviours. On the other hand, records from a single bank may not reflect an individual's gambling spend if they gamble using another account, or use other electronic payment methods to gamble (such as e-wallets).

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[19]
https://www.gamblingcommission.gov.uk/PDF/survey-data/Gambling-participation-in-2019-behaviour-awareness-and-attitudes-superseded.pdf
[20] Blaszczynski, A., Parke, A., Parke, J., & Rigbye, J. (2014). Operator-based approaches to harm minimisation in gambling: summary, review and future directions.
[21] Behavioural Insights Team. (2018). Can behavioural insights be used to reduce risky play in online environments? Available from:
https://about.gambleaware.org/media/1869/gambleaware-phase-iii-report_updated-v1.pdf

Table 4.2.1: Average gambling deposits (£) and number of transactions for gamblers over full observation period (Mar 2016 – Feb 2020)

Per customer averages	In control		Concerning		Very concerning		Full sample	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Average deposits (£) (All gamblers N = 1,528,336)								
Monthly	**17**	28	**574**	1,639	**2,202**	6,481	**93**	250
Weekly	**4**	7	**132**	278	**508**	1,496	**22**	58
Daily	**1**	1	**19**	54	**72**	213	**3**	8
Average no. of transactions (All gamblers, N = 1,528,336)								
Monthly	**1.2**	2.3	**15.6**	22.2	**35.6**	49.6	**2.9**	4.5
Weekly	**0.3**	0.5	**3.6**	5.1	**8.2**	11.4	**0.7**	1.0
Daily	**0.04**	0.1	**0.5**	0.7	**1.2**	1.6	**0.1**	0.1
Average deposits (£) (online gamblers only, N = 1,383,502)								
Monthly	**18**	29	**599**	1,505	**2,270**	6,301	**3.1**	4.6
Weekly	**4**	7	**138**	347	**524**	1,454	**0.7**	1.1
Daily	**1**	1	**20**	49	**75**	207	**0.1**	0.2
Average no. of transactions (Online gamblers only, N = 1,383,502)								
Monthly	**1.3**	2.3	**17.6**	23.2	**39**	51.2	**3.1**	4.6
Weekly	**0.3**	0.5	**4.1**	5.3	**9**	11.8	**0.7**	1.1
Daily	**0.04**	0.1	**0.6**	0.8	**1.3**	1.7	**0.1**	0.2
Months per year in which a gambling transactions occurs								
Number	**5.01**	4.01	**7.97**	4.37	**8.71**	3.96	**5.29**	4.03

Percentage	41%		66%		73%		44%

Weeks per year in which a gambling transactions occurs

Number	**9.39**	11.19	**25.79**	18.63	**30.36**	17.91	**10.96**	11.85
Percentage	17%		46%		54%		20%	

Days per year in which a gambling transaction occurs

Number	**13.14**	21.04	**78.68**	79.04	**112.74**	93.73	**19.64**	26.56
Percentage	4%		22%		31%		5%	
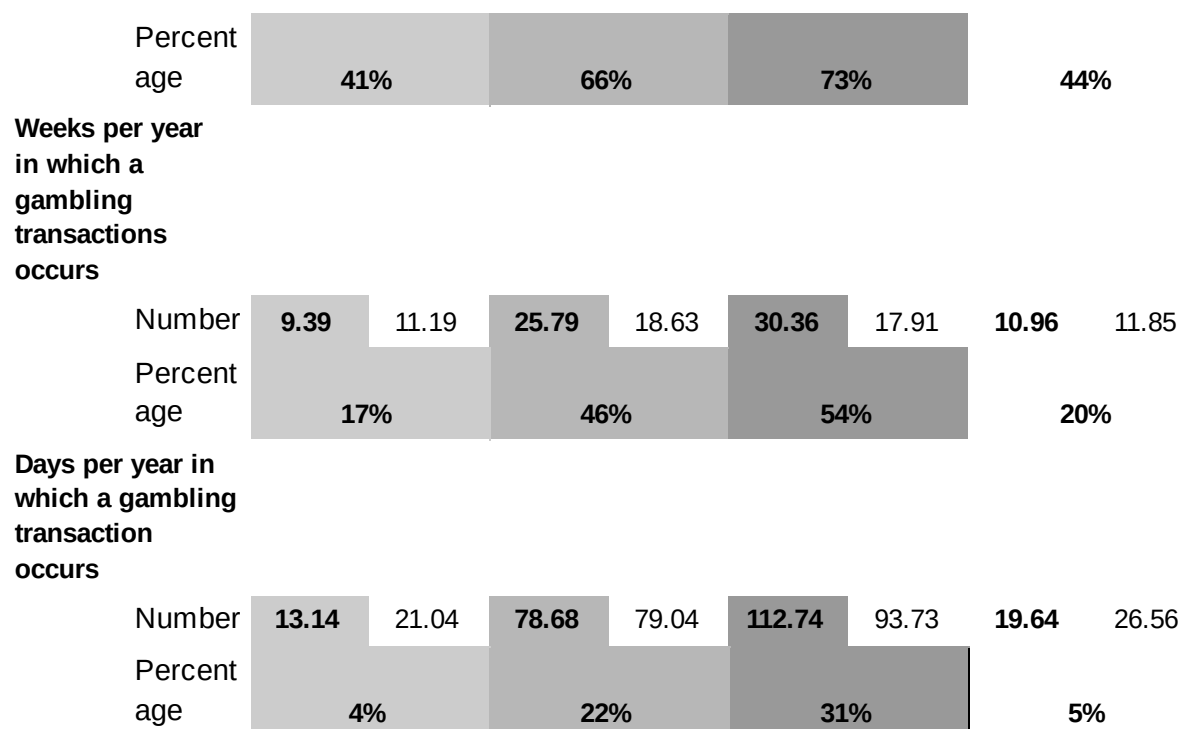
Notes: *Example read*: Across *all* months on record, 'Concerning' customers who gambled online spent an average of £599 per month. Across all months, this spend works out as totalling around 18 transactions a month, or around 4 transactions per week / <1 transactions per day. *Notes:* Row shading indicates relative ranking of each group for a particular measurement, running lowest (lightest) to highest (darkest). Gambling data cover the period March 2016 – February 2020.

Across all observed months, the data indicate that:

- Compared to In Control customers, Concerning customers on average have 13x as many total gambling transactions each month, and Very Concerning gamblers have 30x as many.
- On average, Very Concerning gamblers have as many online gambling transactions per day as In Control gamblers have per month (1.3). Very Concerning gamblers deposit over 4x more each day into gambling accounts (£72) as In Control gamblers deposit per month (£17)

The magnitude of these disparities is considerable, and again highlights the value of insights that transaction-based analysis can permit. Recently, questions have been raised about differing estimates of problem gambling in Britain arising from survey-based approaches.[22][23] Reluctance to admit more severe problems, as well as other cognitive distortions associated with more problematic gambling, may constrain these approaches in ways overcome through analysing behaviour more directly via banking data.[24][25]

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[22] Guardian. (2020, May). UK gambling addiction much worse than thought, says survey.

[23] Sturgis, P., & Kuha, J. (2021). Methodological factors affecting estimates of the prevalence of gambling harm in the United Kingdom: A multi-survey study.

[24] NatCen Social Research. (2020). Treatment needs gap analysis in Great Britain: Synthesis of findings from a programme of studies.

[25] Joukhador, J., Maccallum, F., & Blaszczynski, A. (2003). Differences in cognitive distortions between problem and social gamblers. Psychological reports, 92(3_suppl), 1203 — 1214.

Table 4.2.2: Total gambling deposits (£) and proportion of offline/online gambling deposits across all observed months

	In control N = 1,389,086	Concerning N = 115,531	Very concerning N = 23,719	Full sample N = 1.528,836
Total monthly deposits (£)	44,487,524	102,238,469	70,090,481	216,816,474
Online gambling	40,217,471	84,238,059	62,130,833	186,586,363
Offline gambling	4,270,053	18,000,410	7,959,469	30,229,932
Proportion of total deposits				
Online gambling	90.4%	82.4%	88.6%	86%
Offline gambling	9.6%	17.6%	11.4%	14%

Notes: Shaded cells indicate relative ranking of each group for a particular measurement, running lowest (lightest) to highest (darkest). Gambling data cover the period March 2016 – February 2020.

Again the data clearly show that online gambling drives most of the deposits observed. At a monthly level, In Control gamblers are depositing around £14 on approximately one online gambling transaction. The equivalent for the remaining two segments this works out as :

- Concerning: £34 per transaction (~18 online transactions per month)
- Very Concerning: £58 per transaction (39 online transactions per month)

Despite lower overall gambling, almost 10% of In Control customers engage in some forms of offline gambling. The vast majority of any customer segment's gambling deposits captured in this data — upwards of 80% — comprised online gambling. By 'offline' we mean any gambling transaction (via card payment) taking place at a premise such as a high-street bookmakers, gaming shops, or casinos and so on.[26] Given this group generally gambled more casually, as evidenced by the amount and frequency of deposits, there is nonetheless a sizeable proportion who may be gambling at dedicated gambling venues. While the scope of our analysis meant we did not assess whether this is a cause for concern, one such way to do so using transaction records would be to determine whether such customers are more likely to move *into* either of the remaining two groups over time.

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[26] The data do not capture payments for products such as lottery tickets or scratch cards made at supermarkets.

4.3 Are there any trends in gambling deposits across a week, month, or year?

Our data cover gambling deposits between February 2016, and March 2019. HSBC UK was able to provide information on average monthly gambling deposits for each of the 37 months in the period, however we were unable to investigate daily, or weekly data at an equivalent level of detail. Figure 4.3.1 shows for each year in the available data the average a) number of monthly gambling transactions, and b) monthly gambling deposits per year.

Figure 4.3.1: Average overall monthly gambling transactions, and deposits across full observation period in the data
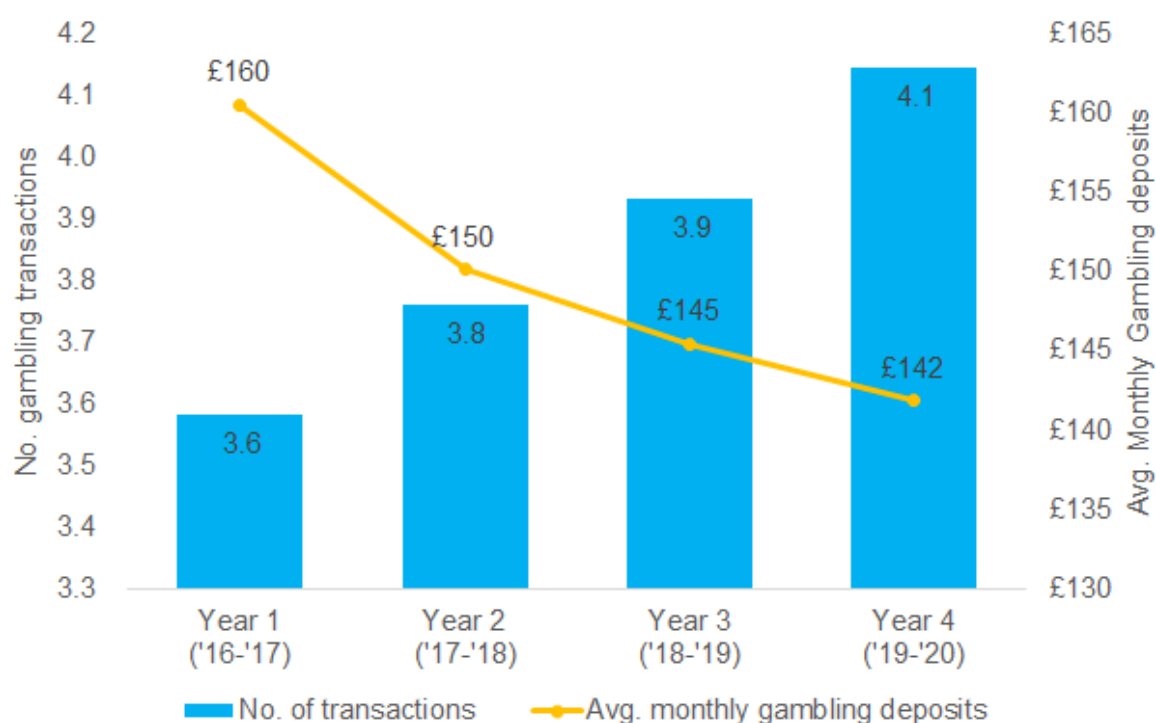
While the pound amount of average monthly gambling deposits decreased during the period, the number of gambling transactions increased. Our findings on deposits were congruent with Gambling Commission data showing an overall decrease in total gambling deposits particularly between April 2017 and March 2020.[27] That data also, however, shows increases in amounts spent particularly on remote forms of gambling (e.g. online forms of betting).

Figure 4.3.2 shows the three-year trends in gambling behaviour at the monthly level for each of the three major customer segments.

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[27] Gambling Commission. (2020). Industry statistics: April 2015 — March 2020. Available from: https://beta.gamblingcommission.gov.uk/statistics-and-research/publication/industry-statistics-november-2020

Figure 4.3.2: Monthly deposits and number of transactions per gambler across all months on record
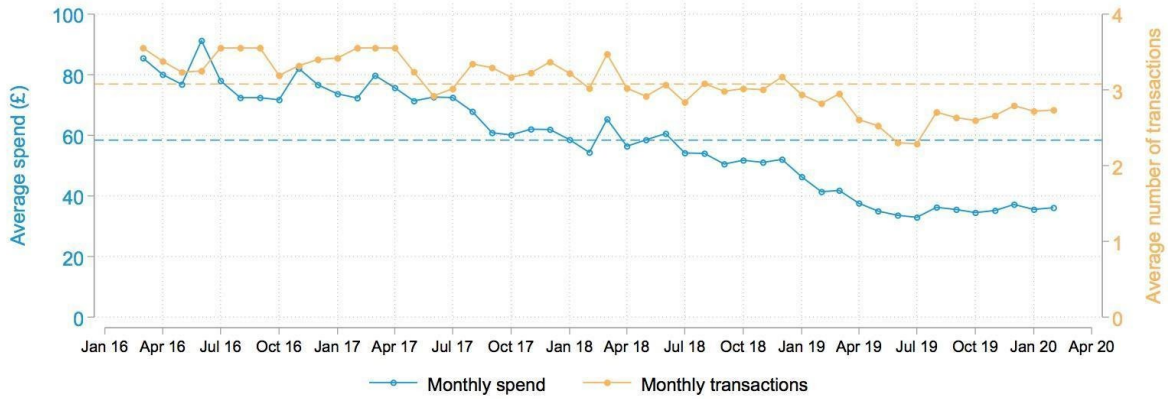
In Control customers; dashed lines indicate average values
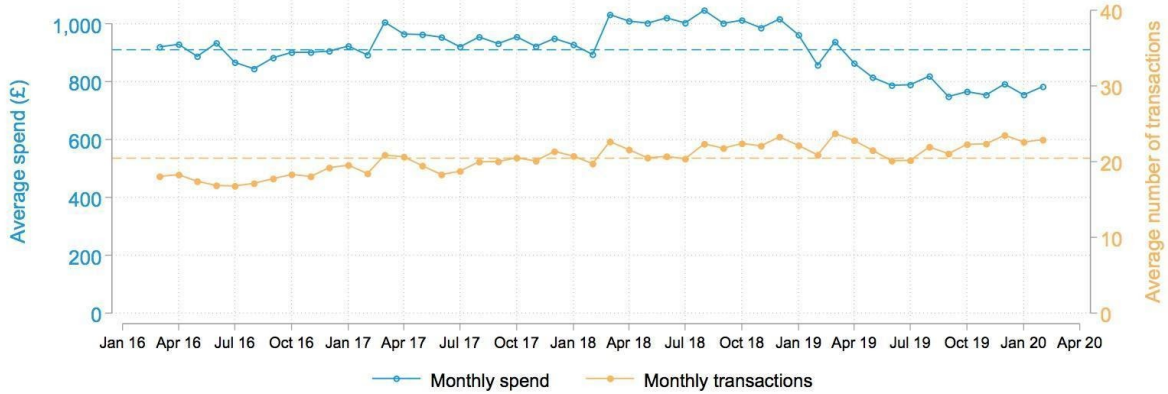
Concerning customers; dashed lines indicate average values
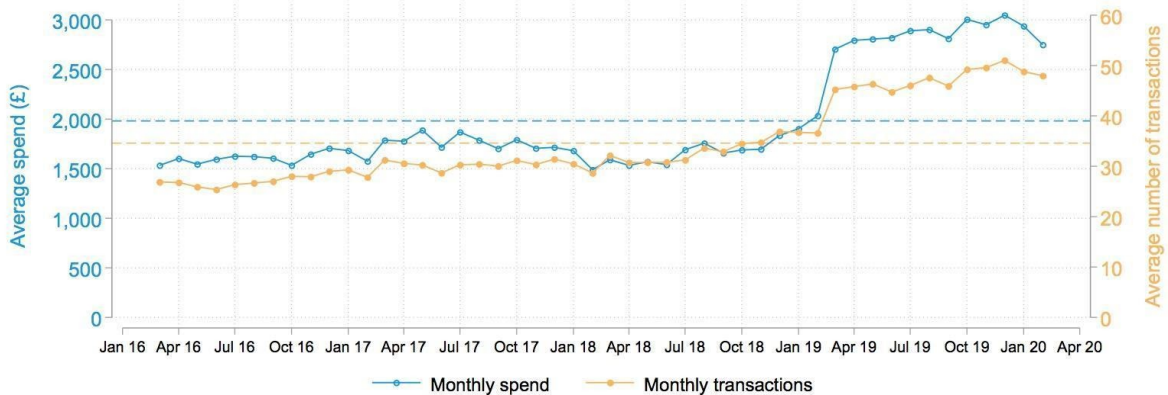
Very Concerning customers; dashed lines indicate average values

A clear trend is that while gambling activity has decreased overall among the In Control group in more recent times, this same period is characterised by a sharp uptick in behaviour among the Very Concerning group. Average deposit amounts for the In Control group in 2020 was roughly half that observed at the beginning of the

observation period; in contrast, the Very Concerning group deposited roughly double between these two points. There is also a distinct divergence between the Concerning, and Very Concerning groups in terms of the average number of, and value of monthly gambling transactions.

The Very Concerning increased both their overall frequency of gambling and overall deposit amounts particularly since Q1 2019. The same period is marked by more of a convergence between these measures for the Concerning group, with deposited amounts dropping but frequency slightly increasing. While the figures show a number of instances where spikes in behaviour occur between January and April in a year, the Q1 2019 spike observed for the Very Concerning group is the most considerable.

Our analysis of bank transaction data alone cannot confirm if there are causal relationships between spikes and dips in gambling behaviour and external events. From a speculative point of view, however, we note that a £2 fixed odds betting terminal (FOBT) maximum stake was implemented in Great Britain on 1 April 2019. This raises the question of whether this change contributed to an increase in other forms of gambling within the sampled Very Concerning group around the same time.

Figure 4.3.3: Average weekday vs. weekend gambling deposits for each customer segment
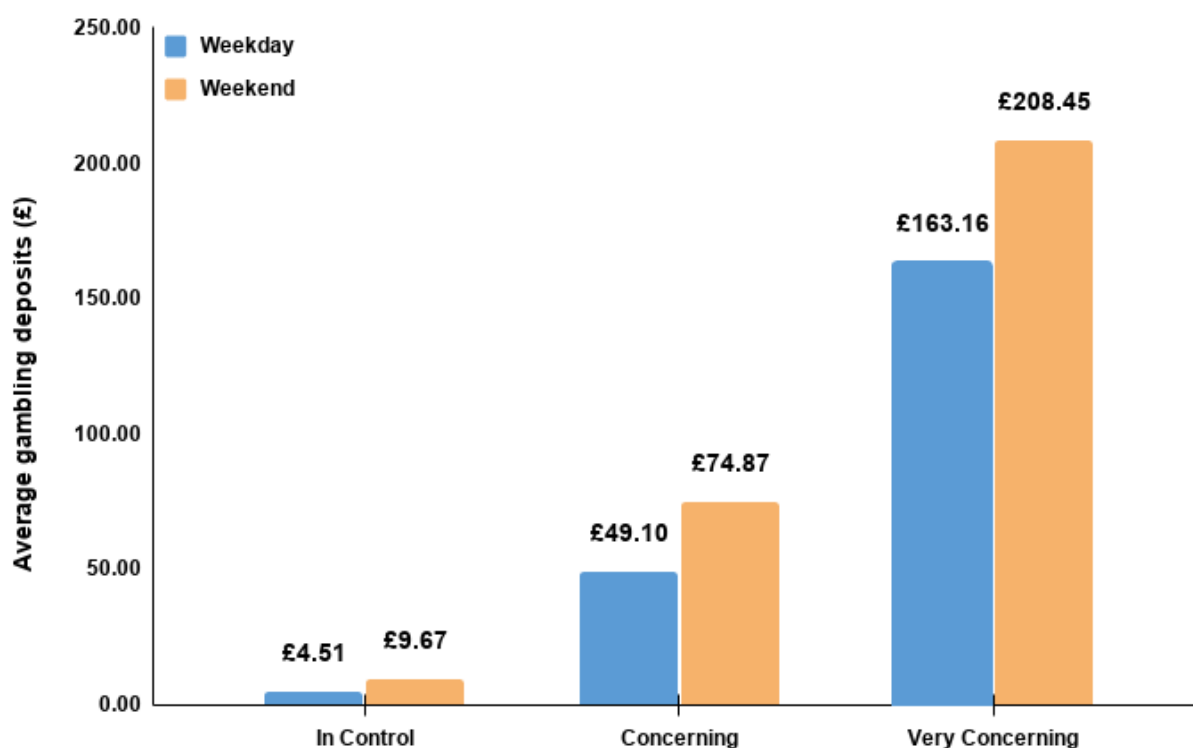
Finally, comparing average gambling deposits made on a weekday (i.e. Monday – Friday) to those made on a weekend day (i.e. Saturday – Sunday) we see that, across all groups, average gambling deposits are higher during weekend days. Deposits by the In Control group are approximately 2.1 times higher at the weekend, compared with approximately

1.5 times, and 1.3 times higher for the Concerning, and Very Concerning groups respectively. This would suggest that deposits made by the larger spending groups are more consistent throughout the week, with the In Control customers more likely to show a greater increase in deposits at the weekend.

4.4 Characteristic profiles - What Theme 1 tells us

Table 4.4.1: Customer segments - what Theme 1 tells us

In Control	Concerning	Very Concerning
Socio-economic characteristics		
● Largest proportion (29%) aged 31 – 40 years ● Age groups closely match that of full sample ● 60% male ● Average account income of ~£33,000 ● Average monthly account balance of ~£2,000	● Largest proportion (33%) aged 31 – 40 years ● Younger age groups are somewhat over-represented (~+12%) vs. full sample. Oldest age groups are under-represented (~-17%). ● 77% male ● Average account income of ~£56,000 ● Average monthly account balance of ~£4,000	● Largest proportion (32%) aged 31 – 40 years ● Younger age groups are substantially over-represented (~+22%, and older age groups substantially under-represented (~-21%) vs. full sample. ● 76% male ● Average account income of ~£57,000 ● Average monthly account balance of ~£2,200
Overall gambling behaviour		
● 90% of total gambling deposits are online ● Gambles with an average of just under 2 operators ● Deposits on average £17 per month into gambling gambling accounts ● Averages £14 per online transaction in a month ● Typically around 1 gambling transaction per month ● Is likely to deposit into their gambling accounts in around 17% of weeks per year, and 40% of months per year ● On average, deposits around 2.1 times more into their gambling accounts on weekends vs. weekdays	● 82% of total gambling deposits are online ● Gambles with an average of around 4 operators ● deposits on average £574 per month into gambling accounts ● Averages £34 per online transaction in a month ● Typically around 16 gambling transaction per month ● Is likely to deposit into their gambling accounts in around 46% of weeks per year, and 66% of months per year ● On average, deposits around 1.5 times more into their gambling accounts on weekends vs. weekdays	● 89% of total gambling deposits are online ● Gambles with an average of around 6 operators ● Deposits on average £2,202 per month into gambling accounts ● Averages £58 per online transaction in a month ● Typically around 36 gambling transaction per month ● Is likely to deposit into their gambling accounts in around 54% of weeks per year, and 73% of months per year ● On average, deposits around 1.3 times more into their gambling accounts on weekends vs. weekdays

5. Theme 2 - How is gambling related to everyday spending, and income?

Our second research theme assessed how gambling relates to wider financial behaviours. We first established how the different HSBC customer segments vary in terms of essential spending. Next, we examined in further detail how levels of gambling deposits vary across different account income levels. Our final research question under Theme 2 set out to investigate how gambling behaviour might fluctuate in and around payday, however, as will be seen, this question proved difficult to analyse in practice.

5.1 How do gambling deposits vary relative to available account income?

Table 5.1.1 highlights the distinct difference in the proportion of disposable account income spent on gambling deposits between the Very Concerning group (58%), and the Concerning group (19%). Later in this chapter, however, it can be seen that the Very Concerning group's outgoings appear to be within their account means, while the Concerning group's overall monthly outgoings far exceed the monthly account income into their account (see Table 5.2.1).

Table 5.1.1: Average gambling deposits as a proportion of disposable account income, and spend per income bracket

Per customer averages	In control N = 1,389,086 Mean	Concerning N = 115,531 Mean	Very concerning N = 23,719 Mean	Full sample N = 1,528,336 Mean
Monthly account income (£)				
Overall account income	3,842	4,630	4,762	3,917
Disposable account income	2,011	3,075	3,776	2,613
Monthly gambling deposits (£) (all months on record)				
Average monthly deposit	17	574	2202	93
Ratio of deposits to disposable income	<1%	19%	58%	4%

Monthly gambling deposits (£) by account income band (all months on record)

<=10k	13	332	519	52
11-25k	16	337	685	48
26-40k	18	421	1,084	61
41-60k	19	536	1,705	79
61-90k	19	727	2,712	111
>=91k	19	1,483	8,587	349

Notes: Disposable income is computed by subtracting total essential spend (see Table 5.2.1 below) from total monthly credits to the account. Row shading indicates relative ranking of each group for a particular measurement, running lowest (lightest) to highest (darkest). Gambling data, and account income data cover the period March 2016 – February 2020.

5.2 How does spending in everyday categories vary with gambling behaviour?

HSBC UK provided details on average monthly spending in each customer segment for the period March 2019 – February 2020. Average monthly spending was calculated for two overarching categories:

Essential spending	Non-essential spending
A composite measure comprising: ● Supermarket ● Council Tax ● Utilities ● Petrol/Car Expense ● Transport ● Telephone/Mobile ● Insurance ● Medicine ● Rent ● Loan and mortgage Payments	All remaining spending not captured under the Essential category, and including gambling deposits.

Table 5.2.1 provides an overview of the average monthly essential, and non-essential spending for each segment as calculated for the entire March 2019 – February 2020 period.

Table 5.2.1: Average monthly essential, and non-essential spending for each customer segment

Per customer averages	In control N = 1,389,086 Mean	Concerning N = 115,531 Mean	Very concerning N = 23,719 Mean	Full sample N = 1,528,836 Mean
Monthly account income (£)	3,842	4,630	4,762	3917
Average monthly essential spend	1,831	1,555	986	1785
Average monthly essential spend-to-income ratio	48%	34%	21%	46%
Average monthly non-essential spend	2,161	3,495	3,570	2214
Average monthly non-essential spend-to-income ratio	56%	75%	75%	57%

Notes: Row shading indicates relative ranking of each group for a particular measurement, running lowest (lightest) to highest (darkest). Gambling data, and account income data cover the period March 2016 ─ February 2020.

The In Control group had a lower average account income than both the Concerning and Very Concerning group. However, the In Control group spent over double the proportion of their account income (48%) on essential costs compared to the Very Concerning (21%) group. Estimates based on Office for National Statistics data suggest that typical monthly essential outgoings at the individual level range from around £1300 – £1600 (assuming rent, or mortgage costs) meaning the lowest earning, and lowest gambling group of customers have higher-than-average monthly essential spending (£1831).[28]

In contrast, the vast majority of each of the higher gambling customer segments' monthly outgoings comprised non-essential spending (this includes gambling deposits).
The highest earning, and highest gambling group in our sample had average monthly essential costs of only £986.

We again emphasise that while providing one part of a fuller picture, our findings are not definitive, as customers may hold accounts with more than one bank and therefore have income and spending which will not be reflected in these data.

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[28] https://www.nimblefins.co.uk/average-uk-household-budget

Figure 5.2.1: Average monthly essential, and non-essential spending across customer segments

In Control customers

Concerning customers

Very concerning customers
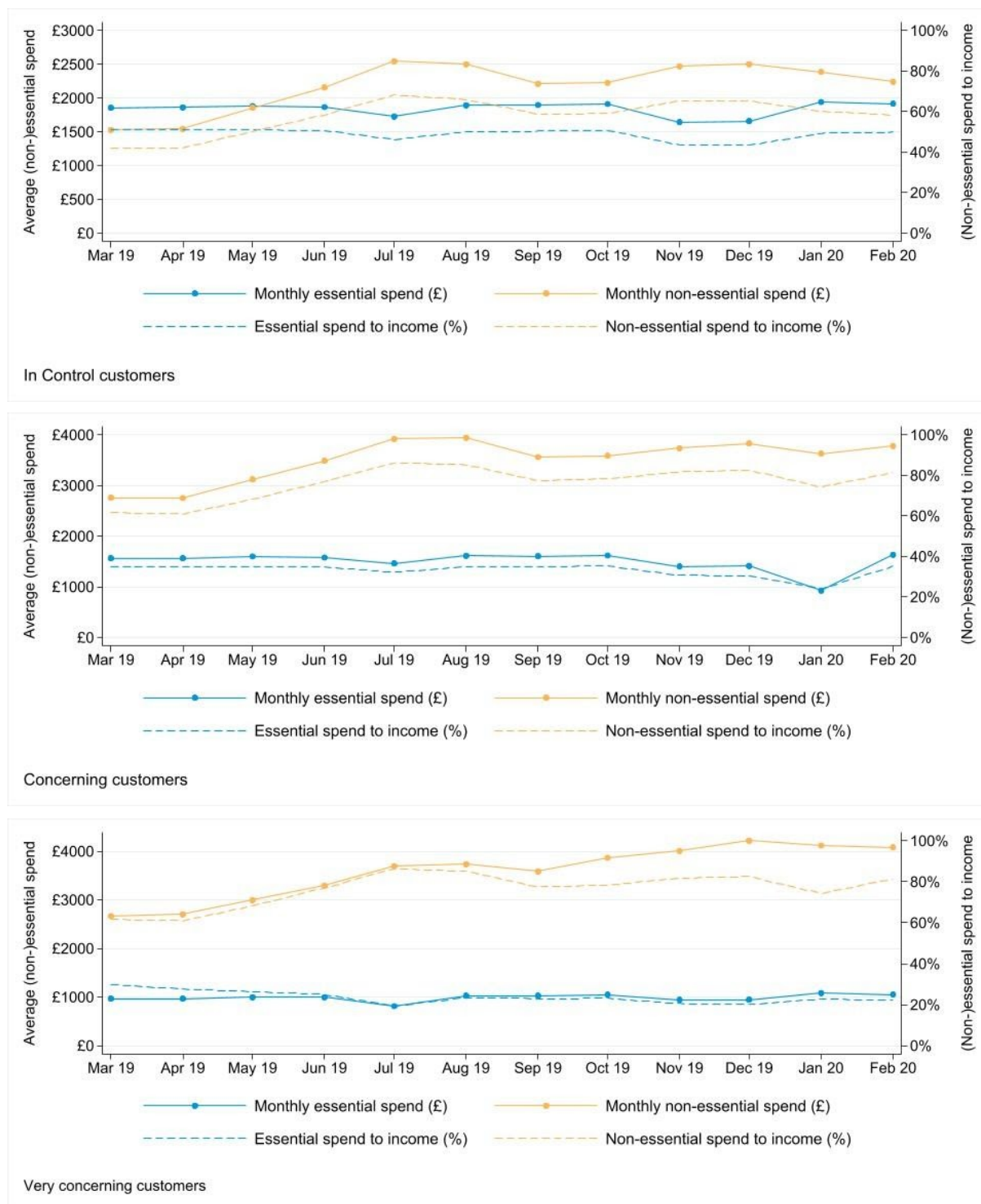
From Figure 5.2.1 two clear observations can be made:

- **Customers across each of the three segments show very stable rates of essential spending over the course of the 12 month period**, with each group having a small increase in spending in 2020 relative to the start of the period.

- Rates of non-essential spending have tended to increase much more over the same period, particularly for the Very Concerning group.

Based on our data only, those in the In Control (-£150), and Concerning (-£420) groups show more outgoings than income. The Very Concerning group would be expected, on average, to end their month with around £206 available from their monthly income. In Chapter 5, we investigate the extent to which each of the three segments make use of overdrafts.

5.3 How do gambling patterns change around payday?

We aimed to investigate if and how gambling behaviour varied in the periods just before, and just after customers received their usual monthly account income. In practice there were a number of limitations to addressing this question. For one, determining a customer's 'payday' is complicated by instances where customers do not receive their income on regular, predictable dates. HSBC UK informed us that it would be a considerable undertaking to determine a unique 'payday' for each customer on record, and as a result the next best option for the current project was to take a much higher-level view by assuming customers are paid either early, mid-, or late in a month.

Figure 5.3.1 shows average gambling deposits per each of our three customer segments according to this assumption. The figure shows the average amount of gambling deposits made by each group in each of three time periods across a month: 'Beginning' covers deposits made during the 1st – 7th in a month, 'middle' the 8th – 23rd, and 'end' from the 24th onwards. **At best, this approach shows that gambling deposits across each timepoint remain relatively stable in each of the three groups**. However, data aggregated at this higher level will fail to capture more acute shifts in behaviour. Data at a daily level is likely to be a more useful tool to assess if 'payday' is associated with changes in gambling behaviour.

Figure 5.3.1: Average gambling deposits for beginning, middle, and end of month
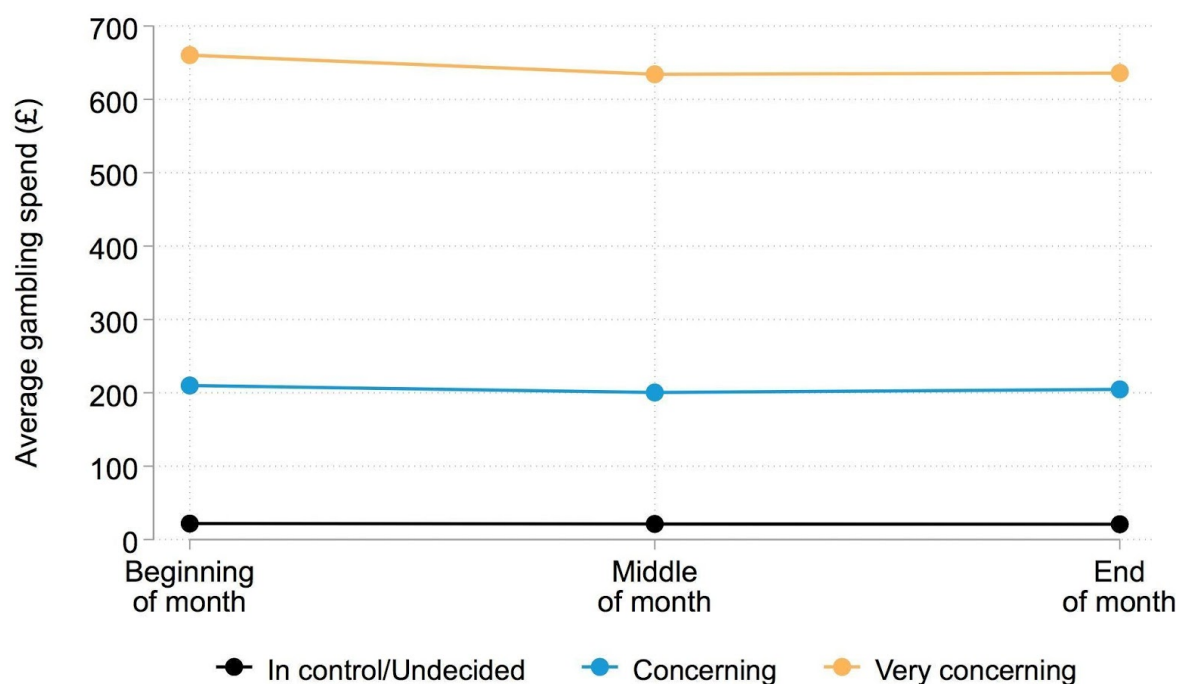
5.4 Characteristic profiles - What Theme 2 tells us about HSBC UK customers

Table 5.4.1: Customer segments - what Theme 2 tells us

In Control	Concerning	Very Concerning
Spending behaviour		
● Average monthly essential spend of £1,831 ● Average monthly non-essential spend of £2,161	● Average monthly essential spend of £1,555 ● Average monthly non-essential spend of £3,495	● Average monthly essential spend of £986 ● Average monthly non-essential spend of £3,570
Gambling behaviour relative to account income		
● Average monthly disposable account income of £2,011 ● Spends <1% of disposable account income on gambling deposits per months	● Average monthly disposable account income of £3,075 ● Spends 19% of disposable account income on gambling deposits per month	● Average monthly disposable account income of £3,776 ● Spends 58% of disposable account income on gambling deposits per month

6. Theme 3 - How is gambling related to financial standing, and credit use?

Understanding how gambling relates to activities like saving and borrowing is valuable in the context of individuals' financial wellbeing and resilience to shocks. The Money and Pensions Service, for example, finds that around 19% of low income earners only have £100 – £499 in readily available savings. A further 14% have no available savings at all.[29]

Our third research theme explored whether our gambling customer segments vary in terms of their saving behaviour, and use of credit. Those who gamble may save less, increasing their risk of being unable to cover unexpected costs. Relatedly, major differences in levels of credit use between the three segments could signal underlying financial difficulties, and allow us to observe whether higher levels of gambling, for instance, are associated with higher levels of unsecured lending such as use of overdrafts.[30]

The main windows of insight provided to us by HSBC allowed us to investigate customers' overall wealth and overall unsecured lending as composites, with data allowing for observation of customers' current positions vs. one year previous. Additionally, more specific data on levels of overdraft usage were available. More specific detail on individual savings accounts/behaviours (e.g. contributions) was not possible.

6.1 How has different gamblers' overall financial standing changed in the past year?

HSBC UK uses a metric called 'total relationship balance' (TRB) to reflect their customers' current overall financial standing as captured across any HSBC accounts or products held by that customer. TRB is a composite measure comprising total balances across all:

- current accounts
- savings accounts
- investment accounts

HSBC UK analysed TRB data covering the period March 2019 – February 2020.

We present these data in tables indicating the proportion of customers moving between six different bands representing the total sum of TRB. The percentages in the diagonal line of

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[29] Money and Pensions Service. (2020). The UK strategy for financial wellbeing 2020 — 2030. (https://moneyandpensionsservice.org.uk/wp-content/uploads/2020/01/UK-Strategy-for-Financial-Wellbeing-2020-2030-Money-and-Pensions-Service.pdf)

[30] NatCen Social Science. (2012). Debt and problem gambling: Evidence from Adult Psychiatric Morbidity Survey.

grey cells represent customers that were in the same TRB band in February 2020 as they were in March 2019.

The percentages in the cells to the left of the grey-shaded diagonal indicate people who have moved down a wealth band; the percentages in the cells to the right of the grey-shaded diagonal indicate people who have moved up a wealth band.

To give an example, in the first table below, we see that 8% of those with £500 – £2,000 TRB in March 2019 had moved *downwards* into the less than £50 TRB band by February 2020 (third row). We present three separate tables, one for each customer segment.

Data covering the most recent month captured (February 2020) indicted that each group had average TRB balances of:

- In control customers: £11,976
- Concerning customers: £12,926
- Very concerning customers: £6,138

Table 6.1.1: Changes in total relationship balance bands for In Control customers in sample

In Control Customers	TRB band	February 2020 (most recent month in data)						Grand Total
		<£50	£50-£500	£501-£2k	£2001-£5K	£5001-£10K	>£10K	
	<£10	57%	26%	5%	8%	2%	2%	100%
	N	*82,103*	*38,107*	*7,571*	*12,088*	*2,292*	*3,037*	*141,108*
	£10-£500	15%	52%	12%	16%	2%	3%	100%
	N	*36,552*	*125,445*	*28,751*	*38,242*	*6,006*	*6,770*	*241,765*
	£501-£1k	8%	32%	20%	32%	4%	4%	100%
	N	*7,426*	*29,542*	*18,890*	*29,657*	*4,047*	*3,767*	*93,429*
	£1001-£5K	5%	14%	11%	49%	13%	8%	100%
	N	*12,267*	*38,854*	*28,859*	*133,473*	*35,544*	*20,710*	*269,707*
	£5001-£10K	2%	6%	4%	28%	35%	25%	100%
	N	*2,572*	*6,461*	*4,090*	*31,489*	*40,017*	*28,182*	*112,811*
	>£10K	1%	2%	1%	8%	10%	77%	100%
	N	*2,546*	*5,830*	*3,286*	*19,772*	*24,471*	*192,112*	*248,017*

Note: Each row shows the percentages of people who moved *from* that row's TRB band 12 months previous *into* that column's TRB band most recently. Cells to the left of the shaded diagonal indicate proportions of customers that moved down bands compared to one year previous.

Table 6.1.2: Changes in total relationship balance bands for Concerning customers in sample

Concerning Customers	February 2020 (Most recent month in data)						Grand Total
TRB band	**<£50**	**£50-£500**	**£501-£2k**	**£2001-£5K**	**£5001-£10k**	**>£10K**	
<£10	64%	22%	4%	7%	1%	2%	100%
N	*9,303*	*3,218*	*546*	*1,028*	*183*	*265*	*14,543*
£10-£500	20%	49%	10%	15%	3%	3%	100%
N	*3,237*	*8,170*	*1,704*	*2,437*	*458*	*530*	*16,536*
£501-£1k	12%	34%	16%	28%	5%	4%	100%
N	*645*	*1,772*	*860*	*1,481*	*246*	*233*	*5,237*
£1001-£5K	8%	18%	11%	42%	12%	9%	100%
N	*1,220*	*2,638*	*1,569*	*6,251*	*1,811*	*1,341*	*14,830*
£5001-£10K	4%	8%	4%	29%	29%	26%	100%
N	*250*	*492*	*271*	*1,755*	*1,769*	*1,552*	*6,080*
>£10K	2%	3%	2%	9%	9%	75%	100%
N	*264*	*505*	*305*	*1,349*	*1,395*	*11,491*	*15,309*

Note: Each row shows the percentages of people who moved *from* that row's TRB band 12 months previous *into* that column's TRB band most recently. Cells to the <u>left</u> of the shaded diagonal indicate proportions of customers that move<u>d do</u>wn bands compared to one year previous.

Table 6.1.3: Changes in total relationship balance bands for Very concerning customers in sample

Very Concerning Customers	February 2020 (Most recent month in data)						Grand Total
TRB band	**<£50k**	**£50-£500**	**£501-£2k**	**£2001-£5K**	**£5001-£10K**	**>£10K**	
<£10	63%	24%	4%	7%	1%	2%	100%
N	*2,405*	*908*	*144*	*258*	*45*	*75*	*3,835*
£10-£500	24%	47%	10%	14%	3%	2%	100%
N	*927*	*1,810*	*371*	*522*	*109*	*87*	*3,826*
£501-£1k	16%	34%	15%	26%	5%	4%	100%
N	*169*	*369*	*166*	*288*	*49*	*46*	*1,087*
£1001-£5K	10%	21%	11%	40%	11%	7%	100%

N	*276*	*565*	*282*	*1,056*	*303*	*182*	*2,664*
£5001-£10K	7%	12%	5%	30%	26%	20%	100%
N	*67*	*116*	*54*	*302*	*259*	*195*	*993*
>£10K	3%	6%	2%	10%	11%	67%	100%
N	*59*	*109*	*40*	*176*	*187*	*1,144*	*1,715*

Note: Each row shows the percentages of people who moved from that row's TRB band 12 months previous into that column's TRB band most recently. Cells to the <u>left</u> of the shaded diagonal indicate proportions of customers that mov<u>ed down</u> bands compared to one year previous.

Very Concerning gamblers showed greater movement down through the wealth bands compared to Concerning gamblers. To use one wealth band as an example, around 21% of In Control and Concerning gamblers in the band £1,001 – £5,000 in March 2019 were in a higher wealth band in February 2020, compared to 18% of Very Concerning gamblers.[31]

For the same wealth band, around 30% of In Control gamblers were in a lower wealth band in March 2019 relative to February 2020, compared to 37% of Concerning gamblers and 42% of Very Concerning gamblers. This trend of more concerning gamblers being more likely to move down a wealth band holds across most wealth bands in tables 6.1.1 – 6.1.3.

We cannot draw firm conclusions from this analysis on the extent to which gambling deposits contribute to these phenomena. Moreover, a change in a customer's TRB with HSBC UK does not necessarily equate to a change in their financial standing. Customers may have moved money to accounts with other providers or investments, for example, during the observed period.

6.2 Are there differences in gamblers' use of unsecured lending compared to non-gamblers

Table 6.2.1: Arranged overdraft use across customer segments

	In control		Concerning		Very concerning		Full sample	
	N	*%*	*N*	*%*	*N*	*%*	*N*	*%*
N customers	1,389,086	91%	115,531	8%	23,719	2%	1,528,336	100%
Has arranged overdraft	856,871	90%	79,825	8%	18,014	2%	954,710	100%
Proportion of segment	62%		69%		76%		62%	

[31] These numbers have been generated by summing the percentages in a given row. For example, in the 'in control' group, the following cells in the row for people with TRB of £2,001 – £5,000 in Table 5.1.1 are summed: 13% and 8%. The exact percentages in the data may be slightly different due to rounding.

utilising overdraft				
Overdraft limit (Monthly average)	£1,013	£929	£700	£1,000
Percentage utilisation of overdraft (Monthly average)	25%	28%	27%	25%
Monthly fees incurred for unarranged OD				
Mean	£9	£14	£17	£10

Notes: Row shading indicates relative ranking of each group for a particular measurement, running lowest (lightest) to highest (darkest). 'Has arranged overdraft' indicates proportions of customers who have requested the use of an overdraft, and includes customers who may not have actually gone into this overdraft. Data cover the period March 2019 – February 2020.

People in the Concerning and Very concerning segment have a lower average overdraft limit and incur higher mean fees for using unarranged overdrafts, as compared to those in the In Control segment. Average overdraft limits fall from £1,013 for the In Control group to £929 for those in the Concerning gambling segment, and then fall again to £700 for those in the Very Concerning segment. As limits decrease across these three segments the average fees incurred for unarranged overdrafts increases from £9 to £14 to £17.

As with total relationship balance, HSBC UK also provided similar data showing levels of movement for each customer group between bands of total unsecured lending. Here, 'unsecured lending' includes total lending involving overdrafts, credit card balances, and any personal loans with HSBC UK.

As in the tables in Section 6.1, these tables show movement between different bands, comparing unsecured lending in February 2020 against unsecured lending 12 months prior, in March 2019. Reading Table 6.2.2, to illustrate, we see that 6% of in control customers with <£50 in unsecured lending in February 2020 had, one year previously, £500 – £2000 in unsecured lending. Again, cells shaded in grey show the proportion of customers who have remained in the same band, with cells to the left of the diagonal showing customers who have moved *down* into a lower band one year later, and cells to the right showing customers who have moved *up* into a higher band.

Table 6.2.2. Changes in unsecured lending bands for In control customers in sample

In Control Customers	February 2020 (Most recent month in data)						
Unsecured lending band	**<£50**	**£50-£500**	**£501-£2k**	**£2001-£5K**	**£5001-£10K**	**>£10K**	**Grand Total**
<£50	57%	26%	8%	3%	3%	2%	100%
N	47,737	21,868	7,014	2,443	2,339	1,764	83,165
£50-£500	19%	50%	21%	5%	3%	2%	100%

	<£50	£50-£500	£500-£2k	£2001-£5K	£5001-£10K	>£10K	Grand Total
N	25,308	65,802	27,406	5,944	4,072	3,096	131,628
£500-£2k	6%	20%	54%	12%	4%	3%	100%
N	8,837	29,490	79,264	17,573	6,510	4,629	146,303
£2001-£5K	3%	8%	25%	47%	12%	6%	100%
N	3,082	7,732	25,019	47,912	11,781	6,468	101,994
£5001-£10K	1%	3%	5%	27%	49%	14%	100%
N	1,339	2,502	4,875	24,729	44,784	12,493	90,722
>£10K	1%	2%	2%	3%	25%	68%	100%
N	660	1,177	1,640	2,298	18,520	50,794	75,089

Note: Each row shows the percentages of people who moved *from* that row's unsecured lending band 12 months previous *into* that column's unsecured lending band most recently. Cells to the *left* of the shaded diagonal indicate proportions of customers that moved <u>down</u> bands compared to one year previous.

Table 6.2.3: Changes in unsecured lending bands for Concerning customers in sample

Concerning Customers	February 2020 (Most recent month in data)						Grand Total
Unsecured lending band	<£50	£50-£500	£500-£2k	£2001-£5K	£5001-£10K	>£10K	
<£50	67%	21%	7%	2%	2%	2%	100%
N	6,444	2,032	632	219	181	148	9,656
£50-£500	20%	48%	20%	6%	3%	3%	100%
N	1,893	4,520	1,936	527	310	286	9,472
£501-£2k	5%	17%	56%	13%	5%	4%	100%
N	525	1,815	5,958	1,353	556	458	10,665
£2001-£5K	3%	7%	20%	50%	12%	8%	100%
N	228	530	1,636	4,071	1,004	608	8,077
£5001-£10K	1%	3%	6%	25%	48%	16%	100%
N	94	194	412	1,793	3,383	1,158	7,034
>£10K-	1%	1%	2%	3%	21%	71%	100%
N	60	91	149	238	1,470	5,019	7,027

Note: Each row shows the percentages of people who moved *from* that row's unsecured lending band 12 months previous *into* that column's unsecured lending band most recently. Cells to the *left* of the shaded diagonal indicate proportions of customers that moved <u>down</u> bands compared to one year previous.

Table 6.2.4: Changes in unsecured lending bands for Very concerning customers in sample

Very Concerning Customers	February 2020 (Most recent month in data)						Grand Total
Unsecured lending band	<£50	£50-£500	£501-£2k	£2001-£5K	£5001-£10K	>£10K	
<£50	73%	16%	5%	2%	2%	2%	100%
N	*1,998*	*451*	*142*	*56*	*57*	*42*	*2,746*
£50-£500	21%	49%	18%	5%	4%	3%	100%
N	*473*	*1,105*	*404*	*116*	*80*	*78*	*2,256*
£501-£2k	5%	16%	55%	13%	6%	5%	100%
N	*107*	*381*	*1,296*	*296*	*143*	*124*	*2,347*
£2001-£5K	2%	6%	18%	50%	14%	9%	100%
N	*36*	*94*	*271*	*752*	*206*	*135*	*1,494*
£5001-£10K	2%	2%	5%	20%	50%	21%	100%
N	*24*	*28*	*59*	*256*	*632*	*268*	*1,267*
>£10K	1%	1%	2%	3%	22%	71%	100%
N	*6*	*15*	*27*	*34*	*261*	*821*	*1,164*

Note: Each row shows the percentages of people who moved *from* that row's unsecured lending band 12 months previous *into* that column's unsecured lending band most recently. Cells to the *left* of the shaded diagonal indicate proportions of customers that moved <u>down</u> bands compared to one year previous.

Across all customer segments, around 54% of customers were in the same band of unsecured lending in March 2020 as they were in February 2019, i.e. they had a similar level of unsecured lending 12 months later. There are, however, a couple of exceptions to this general pattern.

Customers with the highest levels of unsecured lending (>£10,000) were least likely to change band, with 68 – 71% of members of that band staying put across all customer segments. This is not particularly surprising as the band has no upper limit, meaning that many of the customers with £10,000+ of unsecured lending might be well above the threshold of the band and hence need considerable reductions in unsecured lending in order to move into a lower band.

The second exception to the general pattern is that a high proportion (73%) of people in the Very Concerning segment that had unsecured lending of less than £50 in March 2019 still had less than £50 of unsecured lending in February 2020. In other words, a high proportion of customers in that segment kept their unsecured lending down to relatively low levels. In the In Control and Concerning Segments, the proportion of people who had

less than £50 of unsecured lending in March 2019 and stayed in that band was lower, with both at 57%.

One perhaps noteworthy finding is the proportion of people in the Very Concerning segment who moved upwards into the bands corresponding to the highest levels of unsecured credit between March 2019 and February 2020. Taking those with £2,000 – £10,000 of unsecured lending at the start of the period, for example, we find that 22% (N=609 of 2761) of people in the Very Concerning segment were in a higher band of unsecured lending a year later, compared to 18% (N=2770 of 15,111) and 16% (N=30,742 of 192,761) of customers in the 'in control' and 'concerning' segments respectively. Similarly, 23% (N=1172 of 5108) of people in the Very Concerning segment with more than £500 of unsecured lending in March 2019 were in a higher band of unsecured lending by February 2020, as compared to 20% (N=5137 of 25,776) and 17.5% (N=59,454 of 339,019) in the In Control and Concerning segments respectively.

6.3 Characteristic profiles - What Theme 3 tells us about HSBC customers

Table 6.3.1: Customer segments - what Theme 3 tells us

In Control	Concerning	Very Concerning
Financial standing		
● Most recent data indicated average total wealth of £11,976	● Most recent data indicated average total wealth of £12,926	● Most recent data indicated average total wealth of £6,318
● Substantially lower proportions of In Control, and Concerning customers moving *down* a wealth band 12 months later compared to the Very Concerning segment.		
Unsecured lending		
● Make up 90% of the customers in the sample (62% of the group) who have an arranged overdraft ● Typically incur £9 of fees per month (average)	● Make up 8% of the customers in the sample (69% of the group) who have an arranged overdraft ● Typically incur £14 of fees per month (average)	● Make up 2% of the customers in the sample (76% of the group) who have an arranged overdraft ● Typically incur £17 of fees per month (average)
● Substantially higher proportions of customers in the Very Concerning segment show movement upwards into higher bands of unsecured lending 12 months later, vs. In Control, and Concerning segments.		

7. Final reflections

7.1 What did we find out from HSBC UK customer data?

Over the timescale we observed, metrics such as total gambling deposits, and ratio of gambling deposits to disposable income may not be good predictors of gambling harm

HSBC UK categorised customers into three groups — In Control, Concerning and Very Concerning — based on level of monthly gambling deposits and ratio of gambling deposits to disposable account income. Perhaps the most significant finding from this analysis, however, is that looking at these categories in the context of overall account income and expenditure reveals a more nuanced picture of potential harm.

In the highest gambling group — Very Concerning — average gambling deposits amounted to 58% of monthly disposable account income. However, this group also had the highest account income, and ended each month with just over £200 in leftover income after all spending was accounted for. The Concerning group had a similar average account income to the Very Concerning group, a lower ratio of gambling deposits to disposable account income but a notably higher average spend on essentials. Overall, this group would be expected to spend beyond their monthly account income by over £400. The In Control group had a lower average account income than both the Concerning and Very Concerning group, a very low ratio of gambling deposits to disposable account income (2%) but spent almost half of their income on essential spending. This group also showed more outgoings than income, overspending by around £150 per month.

While the work reported here shows clear feasibility for bank transaction data to provide useful insights, using such data to better-capture the extent (or risk) of gambling harm requires further investigation. Future work could explore how the kinds of subjective, survey-based data typically captured in gambling research could be used to supplement the more objective analyses reported here. More broadly, research on financial wellbeing is beginning to strike such balances.[32] Similar approaches could help shed further light on whether Very Concerning gambling customers — the highest spenders on gambling in objective terms — perceive themselves as also at greater risk of gambling harms.

Our analysis points to Concerning customers, in particular, as those who may need support to control their gambling in order to prevent spending beyond their means. Reducing their gambling outgoings may be one way for these customers to mitigate their exposure to financial risk.

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[32] Netemeyer, R. G., Warmath, D., Fernandes, D., & Lynch Jr, J. G. (2018). How am I doing? Perceived financial well-being, its potential antecedents, and its relation to overall well-being. Journal of Consumer Research, 45(1), 68-89.

Yearly changes in overall financial standing, and in unsecured lending levels were more pronounced for the highest-gambling customers

An open question is whether the level of gambling exhibited by those in the Very Concerning group is in fact affordable over the longer term. Across all three customer segments, those in the Very Concerning group were more likely to have seen the overall financial standing of their HSBC UK accounts (current accounts, savings accounts, and investment accounts) decline over 12 months. While a high proportion of people in the Very Concerning segment kept their unsecured lending down to relatively low levels, those Very Concerning customers who were in the highest levels of unsecured credit were relatively more likely to move up a band over 12 months.

That said, we cannot draw firm conclusions from this analysis on the extent to which gambling deposits contribute to these phenomena, or indeed if the amount of money a customer places with HSBC UK is reflective of changes to their wealth. However, given that gambling deposits comprised such a large proportion of disposable income for the Very Concerning group, it invites the suggestion that a reduction in gambling could allow customers in the highest levels of unsecured credit to make more use of available funds, rather than turn to options that incur fees and charges.

We must also consider that our findings are not definitive; data from a single account do not necessarily reflect a person's financial circumstances in full, and mean values will not be reflective of all individual circumstances and will be influenced by more extreme data points (e.g. customers spending considerably above average).

Our observations suggest that considering acute and longer-term financial impacts might be a more useful manner of assessing customer segments' risk

Overall, the kinds of insights transaction records permit are relevant in the context of more recent and increasing calls for affordability checks, and standardised consumer spending caps to be introduced to help prevent gambling harm.[33]

Our analysis hints at the possibility that while Very Concerning customers appear not to be overburdening themselves in terms of average monthly costs, the longer-term impacts could be borne out in terms of reduced available wealth. In contrast, the short-term affordability of gambling for Concerning customers — again taking an average monthly account turnover view — would seem to be a more immediate concern.

This raises the question of whether attempts to classify the status of customers on the grounds of the potential severity, or risk of their gambling behaviour should take both a short- (e.g. a rolling monthly risk rating), and a longer-term (e.g. an 8 – 12 month rating) in order to produce a more comprehensive picture of the potential impacts of customers' financial wellbeing. We would encourage future research by banks, and other researchers to that end.

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[33] Noyes, J., & Shepherd, J. (2020). Gambling review and reformed: Towards a new regulatory framework.

7.2 A view across Part 1 and Part 2 of this project

Section 3.3 of this report gives an overview of the research questions addressed in this project. Some of these questions could be tackled using data from both banks, whereas others were only possible using either HSBC UK or Monzo data alone. This was in part due to differences between the samples. The sample of Monzo customers included non-gamblers, and was constructed to include a greater proportion of gambling block users whereas the HSBC UK sample included only those who had made at least one gambling transaction and covered a longer period of time.

We were unable to fully address research questions around savings behaviours (such as contributions to savings accounts), or the use of the bank's gambling block function, using the data from HSBC UK. In contrast to Monzo, however, HSBC UK's data offered greater scope for analysis in terms of patterns of gambling behaviour across income groups (Theme 2); and insight into customers' use of overdrafts, and unsecured lending (Theme 3).

Consequently, our most insightful findings from the Monzo work focused on comparative relationships between gambling behaviour and innovative tools like savings pots and gambling blocks. This report, on the other hand, is characterised by our ability to look at gambling behaviour in the context of a fairly detailed financial profile — account income, expenditure, overdraft use and financial standing over time.

A drawback of the differences between the Monzo and HSBC UK samples and analyses was that there was little scope for meaningful direct comparisons between findings on the shared research questions.

7.3 What benefits and limitations of using bank transaction data has this project shown?

A core aim of this project, including our equivalent work with Monzo, was to explore the feasibility of working with financial institutions on these kinds of investigative, data-driven projects. Additionally, the work permits a view on the kinds of value, and opportunities that banks may hold as a stakeholder in contributing to efforts to help in-need customers control their gambling behaviour, and get support if harm is occurring.

The initial insights gained from this project are encouraging in terms of the feasibility of using bank transaction data to research gambling behaviour and potential harms

The limitations of typical self-report survey approaches to understanding gambling behaviour remain a) individuals may not accurately, or fully recall the extent of their past

behaviour, and b) self-consciousness may inhibit people from detailing their behaviour.[34] [35] A key benefit of utilising transaction records is that it removes the reliance on the individual to fully present the extent of their gambling. Bank transaction data can also capture spends with multiple operators, in a way that data from a single operator could not.

This project has demonstrated the feasibility of obtaining and analysing aggregated bank transaction data. As discussed above, a key insight from the work with HSBC UK in particular, was the nuances of gambling deposits and apparent affordability, and what this might mean for identifying harms.

A potential opportunity for the use of individual transaction records is in combination with clinical measures, such as the Problem Gambling Severity Index, which capture important assessments of peoples' emotional, and motivational states in relation to their gambling. The objective accuracy gained from transaction records means that openness from banks to share gambling transaction record data (with consent from customers) — particularly for customers showing clinical risks — could be beneficial in terms of identification of, and intervention to reduce gambling harms.

However, transaction records from a single bank are unlikely to offer a full picture

While bank transaction data have the advantage of objectivity, and of capturing deposits made across multiple online operators, records from a single bank may not fully reflect an individual's overall gambling deposits or financial circumstances. For example, while 90% of customers in the HSBC UK sample were deemed 'primary' customers by HSBC UK (i.e. 10+ debit card transactions per month), we cannot be certain what a customer's true income is, given they may receive other forms of income in accounts held with other institutions. Developments in Open Banking and other forms of aggregate services may provide interesting future research opportunities to look at gambling and financial behaviour across accounts with multiple providers.[36]

Relatedly, the idea of examining gambling deposits around 'payday' was attractive, but we found in reality to be technically complex, as not all customers receive a regular, predictable income.

Practical considerations for research using bank transaction data

As noted in Chapter 3, we approached banks with a number of options for how a potential partnership might work. These options attempted to strike a balance between how bank transaction data could be used to gain insights into our research questions and legal, practical, and administrative considerations.

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[34] Volberg, R. A., Gerstein, D. R., Christiansen, E. M., & Baldridge, J. (2001). Assessing self-reported expenditures on gambling. *Managerial and decision economics*, *22*(1-3), 77 — 96.

[35] Kuentzel, J. G., Henderson, M. J., & Melville, C. L. (2008). The impact of social desirability biases on self-report among college students and problem gamblers. Journal of Gambling Studies, 24(3), 307 — 319.

[36] Money Advice Service. Open Banking and sharing your information online. Available from: https://www.moneyadviceservice.org.uk/en/articles/open-banking-and-sharing-your-online-banking-in formation

In the case of HSBC UK, BIT shared an analysis plan allowing the bank's own analysts to conduct the work internally. By doing so we mitigated the substantial legal complexity involved in securing data sharing and data processing agreements. We also were able to benefit from HSBC UK's processing capability for a large sample.

We agreed on a different approach with Monzo, which shared anonymised data with BIT directly. This did require full data sharing and data processing agreements. But with control over the analysis, BIT had greater flexibility to adapt the approach, make modifications and address questions and queries directly.

We consider that both arrangements would be suitable for subsequent research, taking into account the above-mentioned considerations.

7.4 Concluding comments

This project demonstrates the feasibility of bank transaction data as a research tool for gambling behaviours and harms. While gambling regulation may legitimately focus on the role of operators, we see ample opportunities for banks to play a role in predicting, identifying, and helping to mitigate gambling harms. To this end, we welcome and commend HSBC UK and Monzo's collaboration on this project.

A potential hurdle to this type of work is that different banks are likely to a) use different factors, and b) at different thresholds when creating customer segments. Without a standard operating model it raises the possibility that variation in approaches between banks will yield a more fractured perspective on gambling behaviour. As such, there remains an opportunity for researchers, and other stakeholders involved in gambling harm to develop a core operating model on the basis of the types of data available from banks, and to establish evidence-based thresholds.