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ECONOMIC CONSULTING

Impact Assessment on the Reduction of B2 Machine Maximum Stakes to £2

Prepared for the Campaign for Fairer Gambling

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Executive Summary

Introduction

The Department of Culture, Media and Sport (DCMS) periodically conducts a review into the maximum stakes and prizes on gaming machines, including Fixed Odds Betting Terminals (FOBTs). Games playable on FOBTs are split into categories defined by the maximum allowable stake and prize. Category B2 is the classification with the highest maximum stake allowed in Licensed Betting Offices (LBOs). The maximum allowable stake on a B2 game is £100; the maximum prize is £500; the minimum play time is 20 seconds; and B2 machines can only be offered at LBOs and at casinos, with a maximum of four allowed per LBO. B2 machines can also offer classifications of games with lower maximum stakes and prizes, such as B3 games or C games.

The 2016 review is currently underway, and there is speculation in the sector that it could result in new legislation mandating a reduction in maximum stakes on B2 machines from £100 to £2.

Summary of Previous Work

DCMS last consulted on the possibility of changing the maximum stake on Category B2 machines in 2013. The Association of British Bookmakers (ABB) submitted an impact assessment to DCMS arguing that a £2 maximum stake would put 7,900 LBOs (of about 9,000), and 39,000 jobs at risk. In 2014, we wrote a response to the ABB's impact assessment on behalf of the Campaign for Fairer Gambling which found that the ABB had overstated the impact of a £2 maximum stake on the bookmaking sector. Our modelling suggested that between 700 and 1,200 LBOs would close as a result of introducing a £2 maximum stake. Our results were at least partly driven by our assumption that at least some of the revenues resulting from stakes above £2 would continue to be spent in LBOs either on OTC bets or on lower stakes on B2s. We also found that, depending on the labour intensity of spending diverted from LBOs, the reduction in the number of LBOs need not contribute to a reduction in jobs available in the British economy overall.

In April 2015, DCMS introduced a £50 "soft cap" on stakes, which required players to register before placing stakes above £50. Evidence on player behaviour published by DCMS following the introduction of the soft cap confirmed our assumption that some revenues from stakes above £2 would remain within LBOs and showed that gamblers at least partially offset lower stakes by playing for longer.

In 2016, we updated our 2014 on behalf of bacta, the industry body representing arcades and similar entertainment venues in Great Britain, this time focussing on potential maximum stakes of £10 or £20. In 2017, two professors commissioned by the bookmaking sector's charitable arm, GambleAware, found that the £50 soft cap had had little impact on harmful gambling because gamblers simply compensated for lower stakes by playing longer.

NERA's Research Questions

The Campaign for Fairer Gambling has commissioned NERA to update our 2016 report to calculate the impact of a £2 maximum stake on B2 machines using the most recently

available data, including detailed dataset published by the Gambling Commission showing changes in gambling behaviour before and after the imposition of the £50 soft cap.

In calculating the impact of a change in maximum stakes, we consider two sets of questions:

1. **Impact on gambling behaviour:** How will a reduction in the maximum stake affect the behaviour of individual gamblers? How much revenue is lost from FOBTs when the maximum stake is lowered?
2. **Impact on profitability:** How does the change in gambling behaviour affect LBOs' profits? Will any LBOs be forced to close? What will happen to lost revenue (if any) from LBOs? Will it divert to other LBOs?

Estimating the Impact on Gambling Behaviour

Analysis of the change in consumer behaviour following the introduction of a cap at a particular level is necessarily uncertain. Direct evidence on the impact of maximum stakes on betting behaviour is not available because at any one time only one maximum stake applies to B2 machines in the UK. Neither is there publicly-available evidence from surveys or large scale experiments which assess the impact of alternative maximum stakes. Accordingly, we adopt a scenario-driven approach to illustrate the impact of adopting plausible assumptions for changes in consumer behaviour following the introduction of a cap of £2 on stakes on B2s. Our scenarios depend on two essential assumptions: (1) the amount of additional play time (and revenues) that B2 players spend on B2 games if any and (2) the amount of additional play time that that B2 players divert to B3 games in response to the cap, if any.

For the first assumption, we use Gambling Commission data on player behaviour before and after the introduction of the £50 soft cap to define our assumptions about the additional time spent on B2s. The Commission's data suggest that "affected gamblers" (ie. those that changed their behaviour due to the soft cap) decreased their average stake by £30 (from £72 to £42) following the introduction of the soft cap, and increased their play time by 30 per cent. We use these numbers to define assumptions about the additional time that players will devote to B2s following a reduction in the stake:

- a constant-elasticity or "factor" approach, such that consumers increase time played by 1 per cent for every 2.1 per cent reduction in the maximum stake.[1]
- a "linear" approach, such that consumers increase time played by 1 per cent for every £1 reduction in the maximum stake;[2] and

[1] We calculate the elasticity as the change in the natural logarithm of the average number of minutes played, divided by the change in the natural logarithm of the average stake size. In numbers: [ln(1.30) – ln(1)]/[ln(42) – ln (72)] = -0.48. This shows a 0.48 per cent increase in time played with a 1 per cent decrease in maximum stake, or a 1 per cent increase in time played with a 1.89 per cent decrease in time played (ie. 1/0.53).

[2] £1 is equal to the £30 reduction in average stake, divided by the percentage increase in minutes played (30 percent). The linear factor assumes a linear relationship between the average stake size (in pounds) and the percentage increase in minutes played.

The data also allow us to identify the volume of bets that are likely to be affected and the extent to which they are affected. In particular, the data shows that the average stake size was £10 to £19 for those sessions where the average stake was above £2 (depending on whether the gambler is a roulette player or not).

For the second assumption, the introduction of the £50 soft cap provides no evidence of diversion of revenues to B3 games. However, it is not necessarily reasonable to assume the same lack of diversion of play to B3 games following the imposition of a £2 cap: B3 games have a maximum stake of £2 and therefore may be unlikely to compete with stakes of £50 and above on B2 games, but substitution may increase at lower stake levels. B3 games also allow more frequent play and therefore players to spend money more quickly, for the same stake, as a B2 game. In the absence of firm evidence on B2 and B3 substitution, we adopt a range of plausible assumptions inspired by the evidence from the £50 soft cap to assess how sensitive total industry profits and LBO closures are to different assumptions about B3 play.

We define four scenarios, each of which is defined by a consumer reaction leading to a change in B2 revenues and a change in B3 revenues. For reference, we estimate that sector-wide B2 revenues in 2016/17 are £1,317 million and B3 revenues are £487 million.

- In the **Play Longer (Factor)** scenario, we assume that affected gamblers increase their play time in response to a percentage change in maximum stake, and increase their play time by between 200 and 300 per cent. We calculate a change in B2 revenue of minus 74.3 per cent (suggesting that 74.3 per cent of B2 yields are lost in this scenario). We assume that B3 gaming remains unchanged. This corresponds with an overall decrease in FOBT revenues of 62 per cent.
- In the **Play Longer (Linear)** scenario, we assume that affected gamblers increase their play time in response to a levels decrease in maximum stake, and increase their play time by between 8 and 17 per cent. We calculate a change in B2 revenue of minus 91.6 per cent (suggesting that 91.6 per cent of B2 yields are lost in this scenario). We assume that B3 gaming remains unchanged. This corresponds with an overall decrease in FOBT revenues of 76 per cent.

In the second two scenarios, we no longer assume that B2 players react homogeneously. In particular, we assume that some players who exclusively play B2 Excluding Slots (i.e. roulette) are partial to roulette as a game and do not view B3 games as a substitute, while those who play Mixed/Combination sessions are willing to switch to B3 games.

- In the **Switch to B3 (High)** scenario, we assume that:
  - Roulette players (ie. those in the B2 Excluding Slots category) who previously staked above £2 now stake the new maximum on B2 games, and increase their play time according to the factor approach described above.
  - Other B2 players switch to playing B3 games, and increase their play time such that they spend the same amount of money as previously.
  - These assumptions translate into a 79.6 per cent decrease in B2 revenues and a 254 per cent increase in B3 revenue. Overall, FOBT revenues decrease by 22 per cent.
- In the **Switch to B3 (Low)** scenario, we assume that B2 games become obsolete and are no longer offered. Consumers react as follows:

- Roulette players (ie. those in the B2 Excluding Slots category) cease to play FOBTs at all, as the content is no longer offered.
- Other B2 players (including those below £2) switch to playing B3 games, and do not increase their play time.
- These assumptions translate into a 100 per cent decrease in B2 revenues and a 220 per cent increase in B3 revenue. Overall, FOBT revenues decrease by 45 per cent.

The £50 soft cap serves as a useful but flawed case study for a potential £2 maximum stake. Namely, there is a large difference between a £50 soft cap (which can be circumvented) and a £2 hard cap (which cannot be), and there may be a large difference between the affected gamblers in each case, and how they respond. In light of these caveats, the changes in B2 and B3 revenues proposed in the four scenarios represent four plausible consumer responses under the assumptions listed. We do not take a position as to which of these outcomes is the most likely, and other outcomes are also plausible.

Diversion to other LBO Products

LBO revenues need not fall even if FOBT revenues fall, if LBO customers divert revenues to Over the Counter (OTC) products.

In recent years, the decline of OTC betting has coincided with the rise of FOBT gambling, which may indicate that they are substitute products and that some gamblers may switch back to OTC betting if FOBT gambling becomes less attractive. However other causes for the reduction in OTC betting are also possible: Online betting has also increased in recent years which may have diverted revenues from OTC betting. To capture the uncertainty around the proportion of lost FOBT revenues that will divert to OTC betting, we examine three scenarios:

1. In the "Low OTC Substitution" scenario, we assume that the growth in digital betting came entirely at the expense of OTC betting and **0 per cent of lost FOBT stakes are diverted to OTC betting.**

2. In the "High OTC Substitution" scenario, we assume that the growth in digital betting has been entirely additive and the decline in OTC betting since 2001 has been caused exclusively by FOBTs. Based on the available time series, we estimate that **47 per cent of the stakes lost from FOBTs are diverted to OTC betting.**

3. In the "Medium OTC Substitution" scenario, we assume that some of the growth in digital betting has been additive and some of it has cannibalised from OTC betting. We therefore take a midpoint between the "Low OTC Substitution" scenario and the "High OTC Substitution" scenario, and **assume that 24 per cent of lost FOBT stakes divert to OTC betting.**

Constructing Profit and Loss Sheets for LBOs and Model Iteration

To answer our second set of questions on the impact of changes in betting behaviour on industry profits and shop closures, we largely rely on the approach and model developed in our 2014 and 2016 reports, but with updated data. We construct annual revenue and cost data from public sources such as the Gambling Commission and bookmakers' annual reports, and

incorporate our forecasts on lost gambling revenue. For some cost and revenue items, we assume that they vary with the size and/or turnover level of the LBO.[3]

Following a reduction in betting on B2s, our model closes LBOs if they become unprofitable. We assume some diversion of revenues from closing LBOs to those remaining open, until all the remaining LBOs in our model are profitable.[4]

Our profitability model is static, in that it models annual profits under the status quo and under each of the scenarios, but does not seek to account for the passage of time. In other words, our model provides illustrative estimates for the profitability of each LBO in 2016/17 in the presence of the new regulations, and then compares it to the profitability in 2016/17 in the absence of the new regulations.

Results

Under our illustrative scenarios, we find that sector-wide LBO profits fall by between 20 per cent and 61 per cent, relative to a sector-wide total of £807 million, depending on the change in consumer behaviour. Our scenarios suggest that a wide range of outcomes are possible: given the assumptions set out above and detailed in this report up to 41 per cent of shops could close (of 8,788) as a result of the introduction of the cap. On average across all 12 scenarios, we forecast that 17 per cent of shops will close and the industry will lose 42 per cent of its profits, as a result of a £2 maximum stake. Summary results are shown in Table 1 below.

Our results for shop closures are sensitive to our assumptions about shop profitability and distribution.[5] By contrast, industry profit levels are less sensitive to assumptions around the distribution of profitability.

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[3] Our model sets out indicative profit and loss sheets for 12 types of LBOs, defined by three sizes (40 m2, 80 m2 and 120 m2) and four turnover levels (73 per cent of the average for that LBO size; 80 per cent; 100 per cent and 120 per cent). These are the same assumptions as our 2014 report, which draws on data from the Valuation Office Agency (VOA). We assume that small LBOs will close if annual profits fall beneath £5,000, medium LBOs will close if annual profits fall beneath £7,500, and large LBOs will close if annual profits fall beneath £10,000, taken from the profit thresholds in NERA's 2014 and 2016 reports.

[4] Because roughly 75 per cent of LBOs are located in the same postcode district (the first half of a full postcode plus the first digit of the second half, eg. SE5 8) as at least one other, we assume that 75 per cent of lost revenue then diverts to the remaining LBOs, increasing the profits of the remaining LBOs. Our model iterates until all remaining LBOs are above the minimum profit threshold for their size.

[5] Our model assumes that shops fall into 12 categories of profitability. None of these 12 categories of shops are beneath the profitability thresholds that we assume would induce closure in two of the scenarios below ("no closure" scenarios). In practice, the distribution of profitability will be more granular than our simplified assumptions. The distribution may also be wider as a result of that granularity. If so, some shops may close even if the other assumptions underpinning our no closure scenarios were to materialise.

Table 1
Impact on LBO Closures and Sector Profitability

	Shop Closures (%)				Loss in Industry Profit (%)		
	No Diversion To OTC	Medium Diversion To OTC	High Diversion To OTC		No Diversion To OTC	Medium Diversion To OTC	High Diversion To OTC
Play Longer (Factor)	31%	22%	12%		58%	48%	39%
Play Longer (Linear)	41%	30%	18%		61%	49%	44%
Switch to B3 (High)	3%	0%	0%		34%	28%	20%
Switch to B3 (Low)	21%	14%	6%		47%	41%	34%

1. Introduction

In 2001, the UK Government began taxing Licensed Betting Offices (LBOs) on their gross margin rather than on the amount staked. This allowed LBOs to begin installing low-margin Fixed Odds Betting Terminals (FOBTs), in particular Category B2 gaming machines, which would have operated at a loss under the previous tax regime. Since then, FOBTs have become an increasingly important part of LBOs' business, when they had previously relied upon Over-the-Counter (OTC) bets as their primary revenue source (eg. off-track bets on horse races).

The Department of Culture, Media and Sport (DCMS) conducts a triennial review into the maximum stakes and prizes on gaming machines, and its report from the 2016 review is expected soon. There is speculation in the sector that the release of the final report could prompt legislative action to impose a £2 maximum stake on B2 gaming machines, and both the Liberal Democrats and Labour promised to do so in their manifestos.[6]

In advance of a potential legislative battle, the Campaign for Fairer Gambling has commissioned NERA to perform this impact assessment on the bookmaking sector from the imposition of a £2 maximum stake.

Games playable on FOBTs are split into categories defined by the maximum allowable stake and prize, which in turn determine minimum play time and where they can be offered.[7] The highest classification (in terms of maximum stake) allowed in LBOs is B2. The maximum allowable stake is £100; the maximum prize is £500; the minimum play time is 20 seconds; and B2 games can only be offered at LBOs and at casinos, with a maximum of four allowed per LBO. According to the latest Gambling Commission statistics, there are 34,184 Category B2 machines in LBOs and 204 in casinos.[8] Category B2 machines also offer other games, such as Category B3 games with £2 maximum stake, £500 maximum prize and 2.5 second minimum play time. These machines have come under considerable scrutiny due to the potential for gamblers to lose (and win) large sums of money very quickly, earning them the nickname as the "crack cocaine" of gambling.[9]

Several previous studies exist on the impact of maximum stakes on B2 machines. For instance, DCMS's previous triennial review consulted on the possibility of changing the maximum stake on B2 machines in 2013. The Association of British Bookmakers (ABB), the sector body that represents LBOs, submitted an impact assessment to DCMS arguing that a £2 maximum stake would put 7,900 LBOs at risk of closure (out of about 9,000), and consequently would put 39,000 jobs at risk.

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6 https://www.theguardian.com/society/2017/may/25/uk-gamblers-fobt-dcms-losses

7 http://www.gamblingcommission.gov.uk/for-gambling-businesses/Compliance/Sector-specific-compliance/Arcades-and-machines/Gaming-machine-categories/Gaming-machine-categories.aspx

8 Gambling Commission Industry Statistics, May 2017

9 http://www.telegraph.co.uk/finance/newsbysector/retailandconsumer/10678538/Bookies-caught-cold-as-Government-tackles-crack-cocaine-of-gambling.html

In 2014, we wrote a response to this report on behalf of the Campaign for Fairer Gambling. We found that the ABB had overstated the potential of a £2 maximum stake to damage the bookmaking sector. Our model forecast that between 700 and 1,200 LBOs would close in the face of a £2 maximum stake, and that the overall effect on the economy could be positive.

In advance of an anticipated triennial review in 2016, the trade body representing arcades and similar entertainment, bacta, commissioned NERA to update our 2014 report to calculate the impact of a £10 and £20 maximum stake using updated data and assumptions.

This report draws on the reports we wrote and models we built for the Campaign for Fairer Gambling in 2014 and for bacta in 2016, but updates data and assumptions where possible. Where more recent data is not available, we draw on NERA's 2016 report for modelling input assumptions.

In calculating the impact of a change in maximum stakes, we consider two sets of questions:

1. Impact on betting behaviour: How does a reduction in the maximum stake affect the behaviour of individual gamblers? Do they change their behaviour on the machine, playing for longer than they would with a higher maximum stake? Do they substitute to other gambling products, such as B3 machines (with lower maximum stakes and faster play time) or OTC betting?
2. Impact on profitability: How does the change in betting behaviour affect LBOs' profits? Will any LBOs be forced to close? What will happen to lost revenue (if any) from LBOs? Will it divert to other LBOS?

In answering the first set of questions, we have relied new evidence available since our previous two reports relating to regulations implemented in April 2015, which required machine gamblers to either have a registered account or seek approval from an LBO employee in order to stake above £50 in a particular session. While this "soft cap" was implemented before our 2016 report, and we extrapolated limited data on its impacts into our 2016 report, the Gambling Commission has since released more detailed data on machine gambling behaviour in a 12-month period before and after the rule change was implemented.[10]

We have relied heavily on this new dataset to infer changes in behaviour resulting from a hypothetical £2 cap on B2 machines, namely whether gamblers increase their play time when they stake less money. However, the imposition of the £50 soft cap is a weak proxy for the change in behaviour that could occur with the imposition of a £2 hard cap, so we consider a range of scenarios which capture the potential for gamblers to either increase their play time and/or substitute to playing B3 games, which would have the same maximum stake (and prize) but with a shorter maximum spin length.

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[10] The "Before" period covers February 2014 to January 2015, and the "After" period covers July 2015 to June 2016.

http://www.gamblingcommission.gov.uk/news-action-and-statistics/Statistics-and-research/Statistics/Cross-venue-machines-data.aspx

We then build up a set of illustrative Profit and Loss (P&L) sheets for LBOs using publicly available data. We model the market evolution by assuming that LBOs close beneath a certain profit level, but that 75 per cent of lost revenue diverts to other LBOs equally, thereby increasing profits for the remaining LBOs. Our model iterates until all remaining LBOs are above a minimum profit threshold.

This report proceeds as follows:

- Chapter 2 provides background on FOBTs in the bookmaking sector and summarises the arguments set out by the ABB in 2013 and by NERA in 2014 and 2016;
- Chapter 3 details the mechanics of our model;
- Chapter 4 estimates the change in FOBT revenue that would come from a change in maximum stakes;
- Chapter 5 builds up representative P&L sheets for LBOs, and presents our forecasts for the economic impact of a change in maximum stakes on the bookmaking sector; and
- Chapter 6 concludes.

2. Background

This chapter provides an overview of the context of our analysis and report. In particular, we update and report key trends identified in NERA's 2016 report on B2 maximum stakes. We also summarise the arguments made in our 2014 and 2016 reports and a 2013 impact assessment on lowering the maximum stake to £2 by the ABB.

2.1. B2 Machines Account for an Increasing Share of the Gambling Market

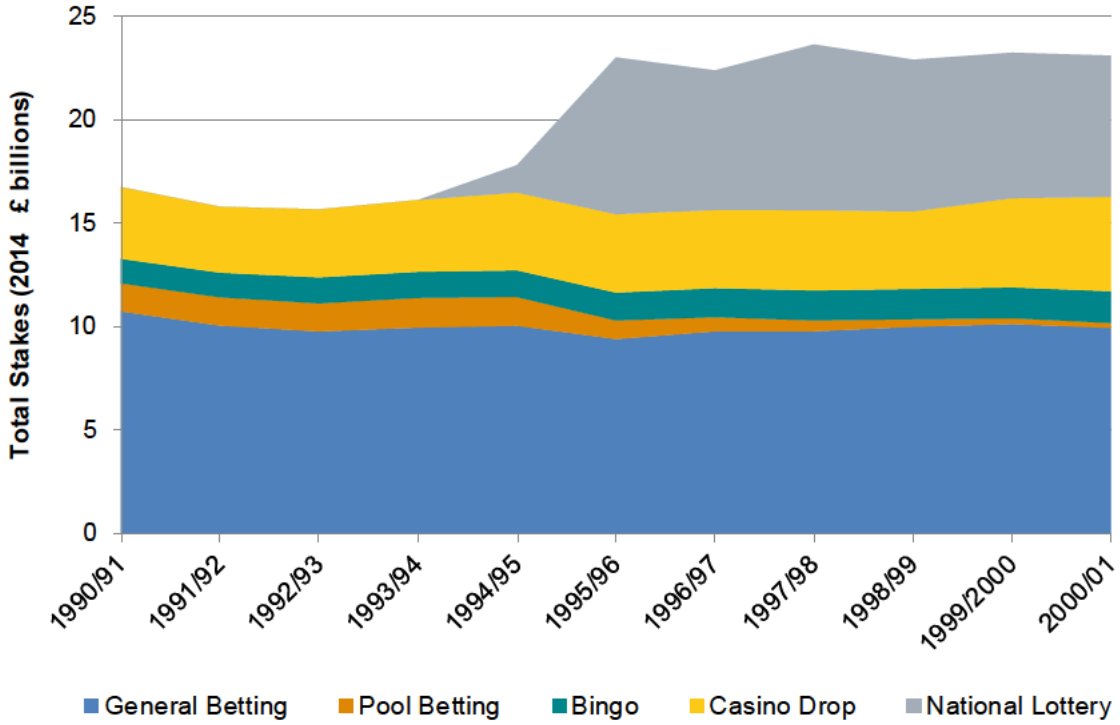
For much of the post-war period, betting at LBOs, mainly on horse racing, accounted for a high proportion of total gambling in the UK. A small number of licensed casinos and "softer" forms of gambling were available through football pools and bingo clubs, but OTC betting in LBOs accounted for much of the gambling activity that took place before the launch of the National Lottery in 1995.

The regulatory framework established in the 1960s allowed gambling to be carried out under strictly controlled conditions, but did not seek to encourage gambling or to allow businesses to offer an attractive product to potential players. For much of this period, there were strong restrictions on the facilities (such as the availability of refreshments, shop front and window displays) that could be offered by LBOs, though these were relaxed to some extent following the launch of the National Lottery. Additionally, until the implementation of the Gambling Act 2005, there was a demand test which restricted opportunities for operators to open new LBOs.

Figure 2.1 shows the amount staked in the UK on different forms of gambling during the 1990s. The main change during this period was the launch of the National Lottery in 1994. Due to the similar nature of the products (low entry price, little or no specialist knowledge required, large jackpots), this led to a significant decrease in pool betting.

While there was also a decrease in general betting following the launch of the National Lottery, this was small and stakes quickly stabilised and grew (in real terms) throughout the late 1990s. General betting stakes also increased as a result of loosened restrictions on LBO facilities, which included allowing prize machines (i.e. "standard" fruit machines as defined under the 1968 Gaming Act) in LBOs.

Figure 2.1
Gambling Stakes in the 1990s



Source: HMCE, Gaming Board for Great Britain

In 2001, the Government began taxing bookmakers on their gross profits (i.e. turnover less winnings), rather than on the amount staked. This allowed LBOs to introduce new, low margin products, including roulette and similar games on fixed odds betting terminals (FOBTs).

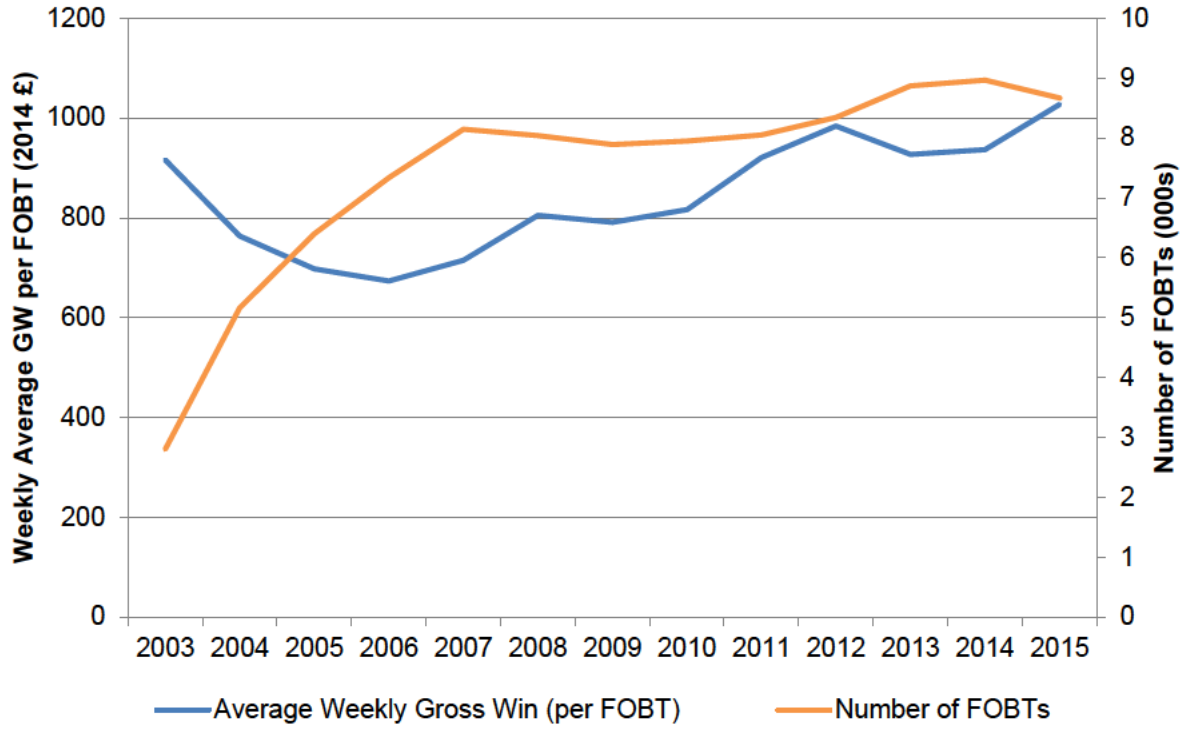
Until the implementation of the Gambling Act 2005, FOBTs in LBOs were not subject to specific regulatory controls. As a result, there are no official sector-wide data showing the speed at which FOBTs were introduced into LBOs, or their commercial impact. However, individual bookmakers have provided some information about the initial growth in FOBTs, and the profits generated by them in their annual reports. Ladbrokes, in particular, provides information that we believe is broadly representative of the sector as a whole.[11]

Figure 2.2 shows that the number of FOBTs in Ladbrokes shops increased rapidly up to 2007, at which point they were close to the maximum limit of four per shop. The average gross win per machine fell during this period, as the number of machines increased. However, FOBTs

[11] The speed at which individual bookmakers installed FOBTs reflects individual arrangements with their suppliers. The rapid increase in Ladbrokes' machines (which led to a temporary decline in gross win per machine) reflected major orders placed with Cyberview Technology (subsequently acquired by IGT). Other bookmakers entered similar arrangements, for example William Hill placed major orders with LeisureLink (now renamed Inspired Gaming).

remained highly profitable and the average gross win per machine has trended upwards since 2006, reaching a level of over £1,000 per week per machine.

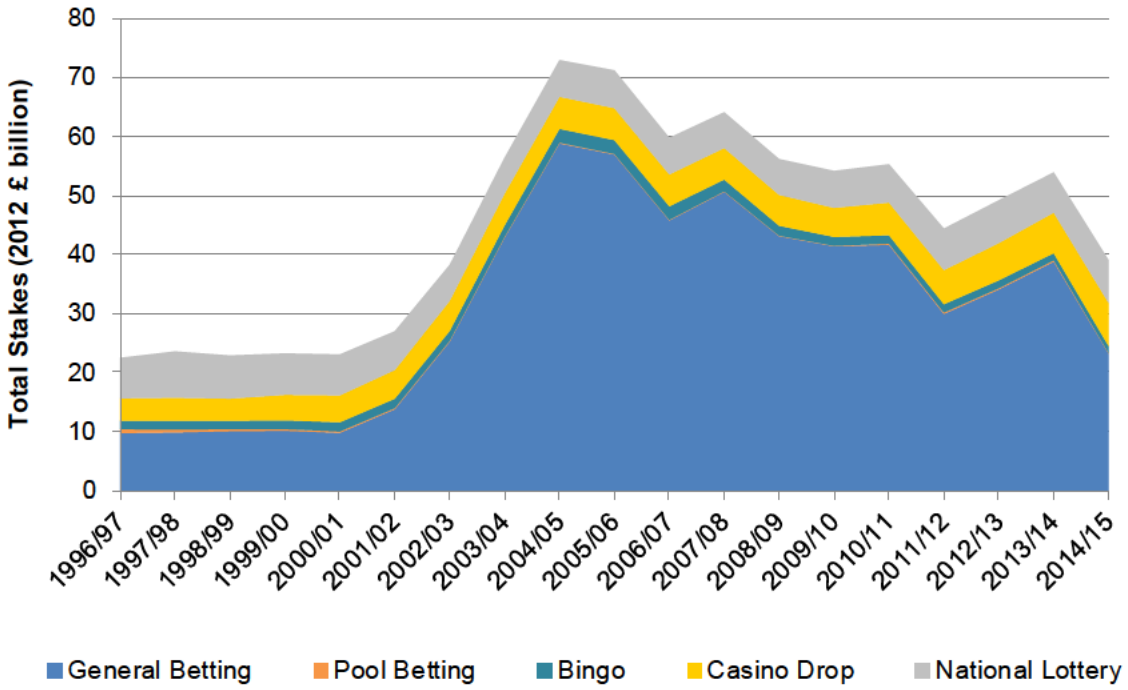
Figure 2.2
Ladbrokes FOBTs



Source: Ladbrokes Annual Reports

The rapid growth of FOBTs led to a substantial increase in the total amount staked in general betting (including both OTC betting and FOBTs), as shown in Figure 2.3. Within four years, general betting stakes increased by more than 500 per cent in real terms. General betting stakes now exceed the amounts staked on all other forms of gambling, and accounted for more than three-quarters of total gambling stakes in every year from 2002/03 to 2013/14.

Figure 2.3
Gambling Stakes since 1996



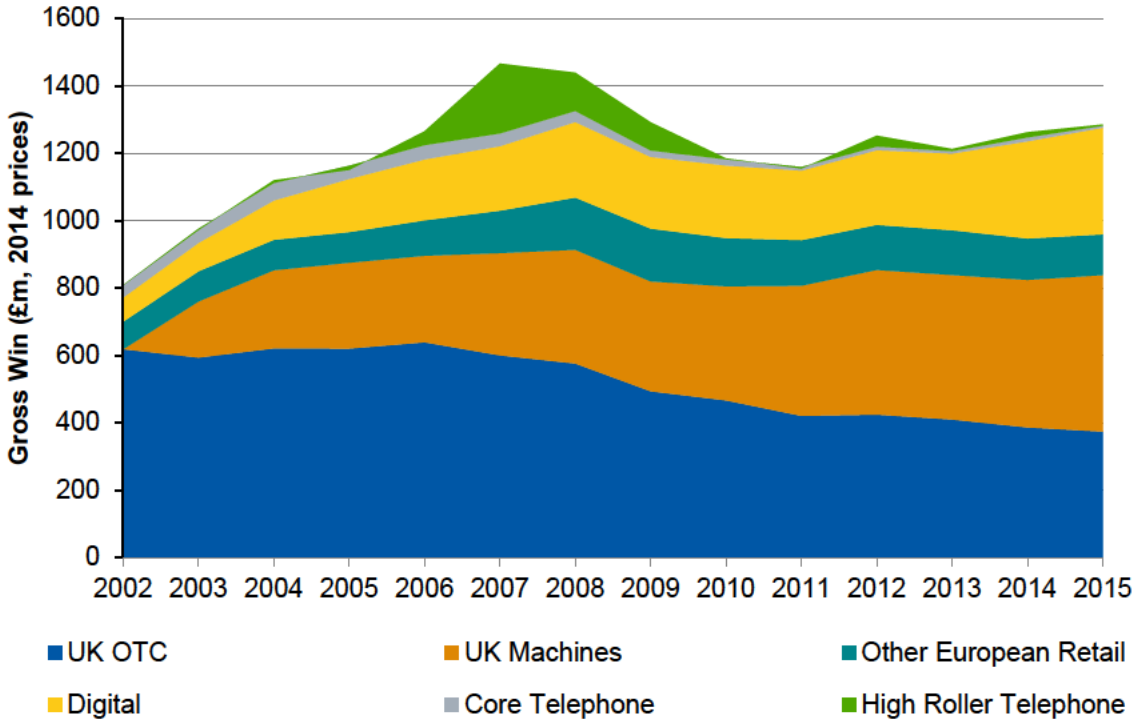
Source: HMCE, Gaming Board for Great Britain, Gambling Commission, NERA analysis Note: For casinos, the chart shows the drop (ie. the amount of money exchanged for chips) rather than total stakes.

However, as the increase in total stakes followed the introduction of new low margin products, there was not an equivalent increase in bookmarkers' gross win. Detailed sector-wide data on the level and composition of LBOs' gross win is not available for the period before the implementation of the Gambling Act and the establishment of the Gambling Commission. However, Ladbrokes has provided data on gross wins in its annual reports, and we believe the trends observed in these data are broadly consistent with developments in the sector as a whole.

Figure 2.4 shows the composition of Ladbrokes gross win over the period from 2002 to 2015.[12] While the total gross win from its LBOs has increased by over 35 per cent (in real terms), this reflects the net effect of a significant real reduction in the gross win from OTC betting, more than offset by strong growth in the gross win from gaming machines.

[12] Because of the 2016 merger of Ladbrokes and Gala Coral, 2016 data is not comparable to previous years' data.

Figure 2.4
Ladbrokes Gross Win

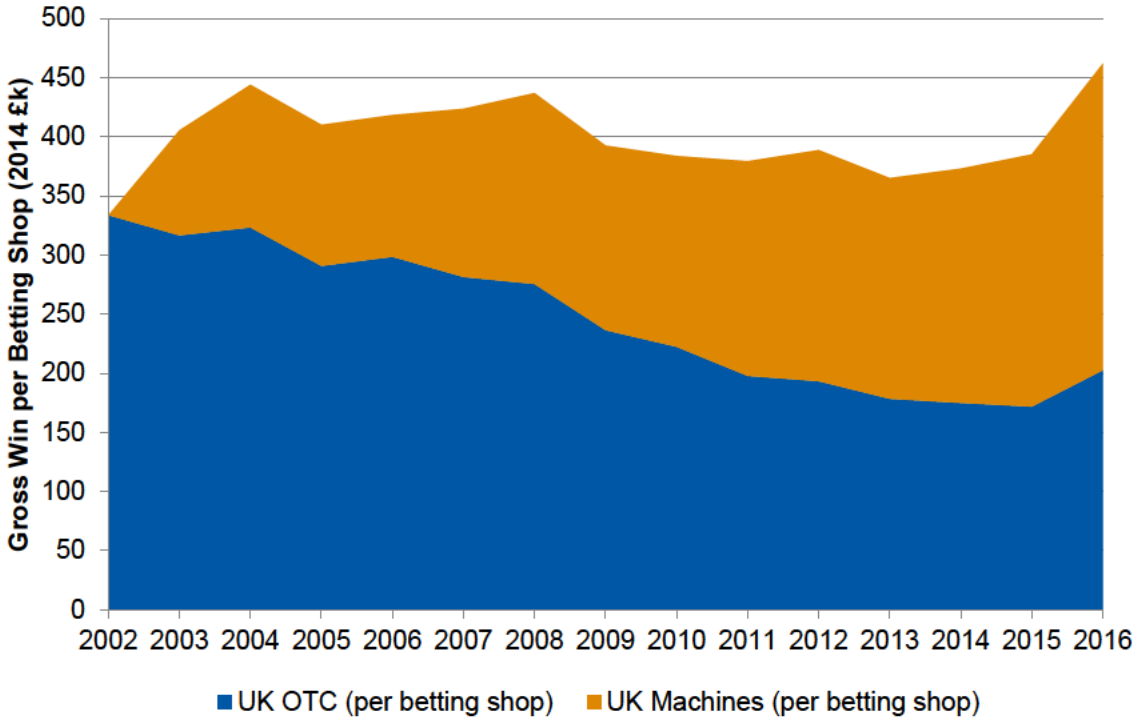


Source: Ladbrokes Annual Reports (note – excludes Vernons)

Despite the reduction in OTC betting, Ladbrokes has increased its number of LBOs by almost 15 per cent since 2002. This stands in sharp contrast to the long term trends observed before the introduction of FOBTs. For most of the last 40 years there had been a slow but steady decline in the number of LBOs in Great Britain. This continued during the 1990s, when the total number of shops fell from more than 10,000 to around 8,700.

As shown in Figure 2.5, Ladbrokes' OTC gross win per shop has fallen by nearly 50 per cent in real terms between 2002 and 2015, but this has been offset by an increase in the gross win from machines. Overall, Ladbrokes' gross win per shop increased by 38 per cent in real terms between 2002 and 2016. During the last year, Ladbrokes' gross win increased by 20 per cent, driven both by OTC and machines, though this may be driven in part by the addition of Gala Coral LBOs in late 2016.

Figure 2.5
Ladbrokes Gross Win per LBO



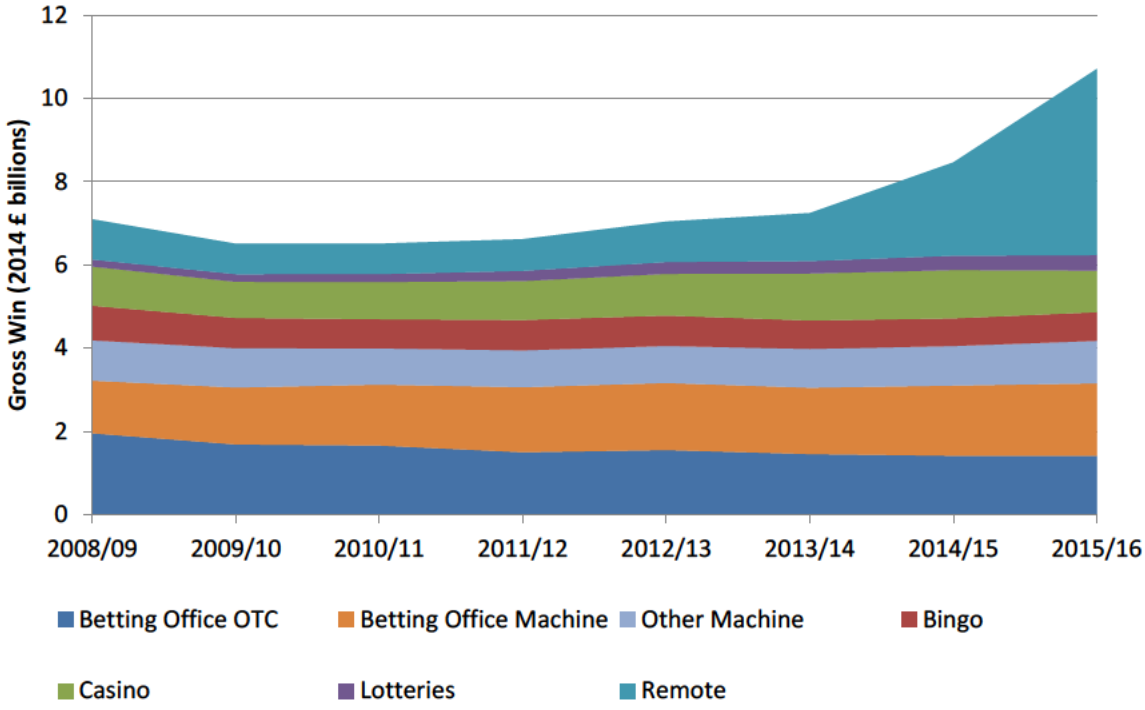
Source: Ladbrokes Annual Reports

As noted above, FOBTs were not subject to formal regulation for several years after their introduction into LBOs. In an attempt to address concerns arising from the rapid growth of gaming machines, the ABB and its members introduced a voluntary Code of Practice. The Gambling Act 2005 then introduced a new licensing framework for gaming machines and online gambling, but also loosened the previous regulatory framework applying to LBOs in a number of important respects (including abolishing the demand test that had been applied to applications for new casinos, bingo clubs and LBOs). It also established the Gambling Commission as the new regulatory body for commercial gambling in Great Britain.

The detailed data that the Gambling Commission has published for the last eight years show that, despite the economic downturn, total gambling gross yields have grown by 50 per cent in real terms since 2008/9. As shown in Figure 2.6, total (real) gross yields from betting, bingo, casinos, charity lotteries and machines has remained relatively constant[13]. Within this total, however, there have been significant falls in OTC betting in LBOs. This has been offset by substantial growth in yields from machines in LBOs and, more recently, by remote gambling.

[13] The sharp increase in Remote gambling from 2014/2015 is largely driven by a methodological change that allowed the Gambling Commission to measure sales by overseas operators to GB customers.

Figure 2.6
Gambling Sector Gross Yields



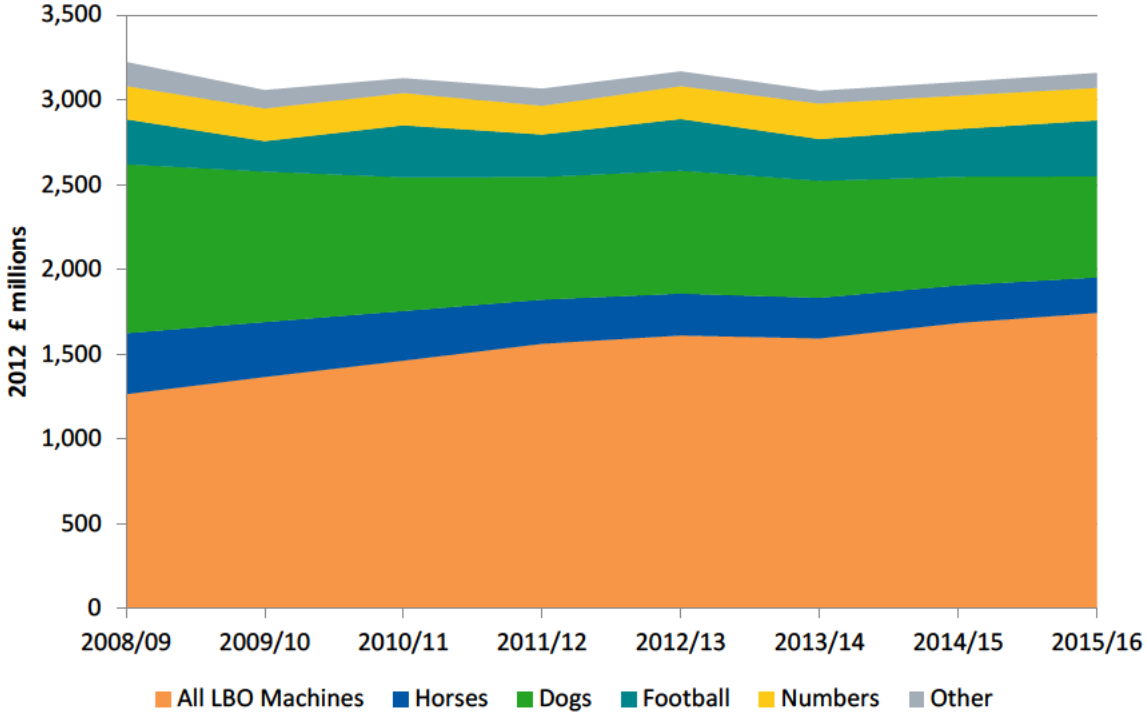
Source: Gambling Commission; Lotteries excludes National Lottery.

Figure 2.7 shows the detailed data for (real) gross yields specifically for LBOs. Real OTC gross yields fell by more than 25 per cent in the eightyears shown in the chart. There was a small real increase in yields from football betting[14], but the yields from all other categories of OTC betting fell in real terms.

In contrast, yields from gaming machines in LBOs increased by 37 per cent in real terms. As a result, total yields from LBOs have remained relatively constant in real terms between 2008/09 and 2014/16, and gaming machines now contribute over half of LBOs' total gross yield.

[14] Football betting varies significantly from year to year, depending on the timing and local interest in World Cup and European Championship competitions.

Figure 2.7
Real GGY in LBOs



Source: Gambling Commission

Category B2 machines account for the vast majority of income from machines in LBOs. In 2015/16, the average number of B2 machines in LBOs was more than 34,684, while there were just 52Category B3-only machines and 33 Category C machines (£1 maximum stake; £100 maximum prize). The average weekly yield from each B2 machine in an LBO was £1,015 between October 2015 and September 2016, compared with just £643 in 2008/09.[15]

2.2. Previous Studies of the Impact of Reducing B2 Stakes

Our work uses four previous reports: a 2013 impact assessment by the ABB on setting a maximum stake B2 of £2, NERA's 2014 response to that impact assessment,[16] NERA's 2016 impact assessment for bacta on a £10 or £20 maximum stake,[17] and a 2017 report by Professors David Forrest (University of Liverpool) and Ian McHale (University of Salford) for GambleAware on the effectiveness of the £50 soft cap.[18]

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15 B2 machines also offer B3 (and lower) games. The Gambling Commission notes that this data refers to the machine rather than the game played, so the yield on B3 games played on a B2 machine would be categorised as B2 yield.

16 NERA (April 2014): *The Stake of the Nation – Balancing the Bookies*

17 NERA (September 2016): *Impact Assessment on the Reduction of B2 Machine Maximum Stakes*

18 Forrest, D and McHale I (January 2017): *FOB-Ts in British betting shops: Further analysis of machine data to examine the impact of the £50 regulations*

2.2.1. ABB's 2013 impact assessment on £2 maximum stakes

As a submission to the DCMS's 2013 triennial review, the ABB's impact assessment argued that reducing the maximum stake to £2 would put 7,880 LBOs and 39,000 jobs "at risk". The ABB calculated this number by:

- Assuming that a £2 maximum stake would lead to a 68.6 per cent reduction in machine GGY;
- Assuming that this money would be permanently lost from LBOs without being substituted to B3 gambling or OTC betting; and
- Assuming that any shop with annual profits under £20,000 is "at risk", despite that many LBOs were already in that category.

2.2.2. NERA's 2014 response to the ABB's impact assessment

NERA wrote a critique of the ABB's submission focussing on the following points:

- Gamblers previously staking above £2 are unlikely to stop using FOBTs simply because there is a lower maximum stake. In fact, they may partially offset the effect of the lower maximum stake by playing for longer (or playing B3 games at the higher frequency that category allows);
- There may be an offsetting increase in OTC betting which limits the reduction to LBOs' profit margins;
- The ABB overestimated profit margin necessary to not be "at risk", considering many LBOs were already in that category;
- The ABB's definition of "at risk" did not consider the benefits to remaining LBOs when a nearby LBO closes. In other words, the ABB implied that LBOs which were *individually* at risk were *collectively* at risk, which was unlikely to be true.

We then formulated our own model using different assumptions and thresholds for closure. We estimated that a £2 maximum stake would force the closure of between 700 and 1,200 LBOs, out of around 9,000.

We also argued that the lost revenue would not necessarily be lost from the economy, and in fact could be redirected to other, more labour-intensive parts of the economy. We estimated that, contrary to the ABB's claim that many jobs were at risk, the economy could gain up to 2,387 jobs, after considering the jobs lost from the gambling sector.

2.2.3. NERA's 2016 impact assessment on a £10 or £20 maximum stake

Bacta commissioned an impact assessment from us in 2016, building on our 2014 report to review the implications of a £10 or £20 maximum stake on B2 machines. However, bacta has not published this report, so we do not describe its conclusions in the public domain version of this report.

2.2.4. Forrest and McHale's 2017 review of the impact of the £50 soft cap

In a report commissioned by GambleAware (formerly the Responsible Gambling Trust, a charitable body supported by the bookmaking sector), David Forrest and Ian McHale analysed the impact of the £50 soft cap on gambling behaviour, using weekly aggregated data provided by Inspired Gaming and Scientific Games, two FOBT manufacturers.

Forrest's and McHale's analysis found that "those affected – i.e. the players who used to stake at high levels, the majority of whom were likely to have been problem gamblers – appear to have adapted their behaviour in a way such that they ended up spending *about as much money* and *more time* than before".[19] Forrest and McHale also observe a long-term decline in the number of weekly sessions that reverses for 19 weeks after the £50 soft cap, then returns to a slightly steeper decline. However, they consider that "it is difficult to argue that the Intervention had any *substantial* lasting effect on the number of player sessions per week. Essentially, over time, this statistic can just be said to have continued to fall".[20] [21]

While Forrest and McHale are hesitant to use their findings to predict the outcome of a lower maximum stake, the ABB did not show the same restraint in its press release about report, stating that "the findings of this independent report clearly conclude there is no evidence that cutting the maximum stake would reduce problem gambling" and that it is "a significant blow to suggestions [that] the stake limit should be cut".[22]

Forrest's and McHale's conclusion that the £50 soft cap did not decrease harm is based on the finding that players increased play time in order to stake a similar amount of money. Therefore, the ABB's argument that the maximum stake should not be reduced further based on Forrest's and McHale's evidence is an admission that players will increase their play time in the face of lower maximum stakes, mitigating the negative impact on LBOs through reduced FOBT yields. Any impact assessment subsequently put forth by the ABB regarding a £2 maximum stake on LBOs should be consistent with this claim.

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[19] Forrest and McHale (January 2017), page 69. Emphasis in original.

[20] Forrest and McHale (January 2017), page 38. Emphasis in original.

[21] The measured variable is "player sessions", rather than players. There is no variable which measures the individual players which engage in FOBT activity.

[22] https://www.abb.uk.com/cutting-stake-limits-on-fobts-could-put-players-at-greater-risk-warns-new-university-report/

3. Mechanics of NERA's Model

For this report, we estimate the economic impact on LBOs if DCMS were to implement a £2 maximum stake, effective from 1 April 2016. Although this date has already passed at the time of writing, this approach allows us to avoid forecasting other changes to the bookmaking sector.

In general, we use actual data from 2016/17 as a counter-factual (ie. in the absence of a new maximum stake) and as a starting point, and adjust this data to take into account the impact on annual revenues of the new regulations. In using 2016/17 data as both the counter-factual and the starting point for any adjustments, we eliminate any time effects from moving from one year to the next.

We estimate the economic impact with a two-step approach.

First, we estimate the impact of a policy change on FOBT revenues. In April 2015, DCMS implemented a policy change that imposed restrictions on stakes above £50. We extend the impact on FOBT revenues from this policy change to forecast the impact on FOBT revenues under a £2 maximum stake, using a set of four scenarios. We expand on this component of our model in Chapter 4.

Second, we build up a set of illustrative Profit and Loss (P&L) sheets for LBOs using publicly available data. We forecast revenues using the latest sector statistics from the Gambling Commission (GC). We incorporate the evolution in FOBT revenue described above.

We forecast costs from a range sources, including published gambling and betting tax rates, rent and business rates obtained from the Valuation Office Agency (VOA) and utilities rates. As not all LBOs are identical, we categorise LBOs into three sizes and four levels of profitability (such that there are 12 classifications of LBOs).

We elaborate on the assumptions regarding LBO profits and loss in Chapter 5.

We model the market evolution by assuming that LBOs close beneath a certain profit level (which varies by LBO size), but that 75 per cent of lost revenue diverts to other LBOs equally, thereby increasing profits for the remaining LBOs. Our model iterates until all remaining LBOs are above a minimum profit threshold.

Our model predicts the number of LBOs which will close and the total sector profits which will be lost under each of the policy scenarios.

4. Impact of Stake Reduction on Machine Gambling Revenue

In April 2015, DCMS implemented new regulations which required gamblers to either play with a registered account or acquire over-the-counter authorisation in order to stake above £50 on any play within a single session. The Gambling Commission has published aggregated but wide-ranging data on gambling behaviour during 12-month periods before and after the implementation of the regulations.

In this chapter, we draw on this evidence from the £50 soft cap to apply it to a £2 maximum stake. This chapter proceeds as follows:

- Section 4.1 justifies the use of the £50 soft cap as a natural experiment and acknowledges its limitations;
- Section 4.2 describes the data the Gambling Commission has published on the impact of the £50 soft cap;
- Section 4.3 describes the analysis we have performed on the Gambling Commission data;
- Section 4.4 justifies and describes the four scenarios we have created to model player behaviour at a much lower maximum stake; and
- Section 4.5 concludes.

4.1. DCMS's £50 Soft Cap Serves as a Natural Experiment in Player Behaviour

4.1.1. Summary of regulations

On 6 April 2015, the Government implemented the Gaming Machine (Circumstances of Use) (Amendment) Regulations 2015. The policy pertained to B2 machines, and was designed to make it more difficult to place stakes above £50.[23] In particular, the new policy requires gamblers wishing to stake above £50 to either use a verified account (similar to a loyalty card scheme) or receive approval from trained OTC staff. DCMS expected three effects:[24]

1. An increase in account-based play;
2. An increase in the amount of staff interaction; and
3. A reduction in revenue due to the due to more gamblers now staking under £50.

In January 2016, nine months after the implementation of this policy, DCMS released a report evaluating its impact on LBOs. It found that the use of verified accounts "is likely to have increased but […] for a limited percentage of stakes".[25] It also found that "the

[23] The policy allows gamblers to stake *exactly* £50 without approval. For the sake of brevity, this section often refers to amounts under or below £50, when that actually includes £50 itself. Similarly, later statements regarding maximum stakes refer amounts under the maximum, but this should be taken to include the maximum itself.

[24] DCMS (January 2016): *Evaluation of Gaming Machine (Circumstances of Use) (Amendment) Regulations 2015*, page 2

[25] DCMS (2016), page 14

percentage of sessions containing OTC authorisation has remained below 1% following the regulations".[26]

Instead of a dramatic uptake in these two verification methods, there was instead a dramatic drop in the amount staked above £50, with a nearly offsetting increase in the total amount staked at stakes below £50.

This finding is confirmed by the Gambling Commission's more recent dataset on the £50 soft cap (described below in Section 4.2), and by Forrest and McHale's work for GambleAware, which found that decreases in stake size were nearly offset by increases in session length.

4.1.2. Justification for using the £50 soft cap in our analysis

While there are a number of limitations present in applying the £50 soft cap to a £2 maximum stake (described below in Section 4.1.3), it also serves as an attractive case study for two reasons:

- The policy was implemented recently in Great Britain, meaning that it is directly relevant to the market structure, consumer base, legal framework, etc., that a £2 maximum stake would apply to; and
- The Gambling Commission has published detailed data on gambling behaviour before and after which allows us to measure key changes in behaviour which could be extended to lower maximum stakes (such as session length).

4.1.3. Limitations of the £50 soft cap case study

There are also several limitations in using the £50 soft cap as a case study:

- The gamblers who were affected by the £50 soft cap (ie. those that changed their behaviour) are not be representative of those that would be affected by a £2 hard cap. This is because these gamblers prefer to stake higher than the average gambler, but, of high stakes gamblers, were less willing to jump through hoops to stake above £50. While these gamblers are not representative, it is not clear which direction any bias would run, so we treat them as representative.
- For someone who prefers to stake £100 per play over a long period of time but is forced to stake £2 instead, it may not be realistic or even possible within the opening hours of an LBO to increase session length to a point where the player stakes a similar amount in total. This has the effect of truncating the distribution of session lengths. However, these represent a very small proportion of total sessions and a small proportion of the total amount staked.[27] Therefore, we ignore this effect.

[26] DCMS (2016), page 16

[27] Less than 0.5 per cent of B2 (excl slots) sessions between July 2015 and June 2016 had an average stake above £50 and a session length above 20 minutes, though they likely account for around 10 per cent of total amount staked (using a midpoint approach as described in Section 4.3).

- Under the hypothetical £2 maximum stake, B2 rules would be identical to B3 rules, except for the minimum spin time (20 seconds for B2 games and 2.5 seconds for B3 games). A £2 maximum stake would likely introduce substitution to B3 games which did not happen as a result of the £50 soft cap.

Noting these limitations, we construct a set of scenarios, which cover a range in potential changes in player behaviour.

4.2. Description of the Gambling Commission Dataset

In February 2017, the Gambling Commission published a dataset describing player behaviour before and after the £50 soft cap. This data is compiled from data provided to the Gambling Commission by Inspired Gaming and Scientific Games, two leading FOBT manufacturers. While this data is aggregated by session into bins or ranges across the whole time period, it still provides several useful dimensions:

- Sessions are divided by game type, namely B2 Only (excl slots), B2 Slots,[28] B3 Slots, Other (B4, C, D) and Combination/Mixed;
- In each game type, the data provides several variables, including:
  - The number of total spins in each game type and the number of sessions;
  - Average stake size per session, provided as the number of sessions within a particular bin (eg. 26p to 50p or £40.01 to £50);
  - Session duration, provided as the number of sessions within a particular bin (eg. 2m 1s to 5m 0s, or 60m 1s to 120m 0s);
  - Net expenditure; and
  - Average stake size jointly with duration (eg. the number of sessions with an average stake of £40 to £50 that lasted between 2 and 5 minutes).

We rely most heavily on the average stake size jointly with duration, which allows us to measure how the session length varies with stake size before and after the regulations. Because the data is presented in bins, we typically rely on midpoints in performing our analysis (eg. we assume that all sessions whose maximum stake is between £40 and £50 have a maximum stake of £45).[29]

4.3. Estimating the Change in Behaviour from the £50 Soft Cap

In this section, we describe our approach to identifying the change in behaviour coming from the £50 soft cap. As noted above, we rely upon the Gambling Commission's data which gives a count of sessions by average stake size and session length in each game category before and after the regulations went into effect.

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[28] We understand from the Campaign for Fairer Gambling that sessions tagged as B2 Slots are "bonus" spins associated with a B3 game. We have therefore excluded these sessions from our analysis, though any revenue from these sessions is implicitly included in an LBO's revenue.

[29] One exception to this is rule is for the highest range, which may not have an upper bound. For instance, the highest session length range is 4 hours or more. In this case, we use 5 hours as a point estimate, but very few sessions fall in this range.

First, we observe from the data that, across gaming categories, session lengths became longer after the £50 soft cap was implemented, but there were fewer of them. To abstract from these counteracting effects, we calculate a total number of minutes played in each stake size bin, assuming that every session in each bin is equal in length to the midpoint between the upper and lower bound of the bin.

Second, we observe that, across the three affected game categories (B2 excl slots and Mixed/Combination), the number of total minutes played in sessions with average stakes above £50 decreased by around 65 per cent, while the number of total minutes played in £30-40 sessions increased by 42 per cent and the total minutes played in £40-50 sessions increased by 129 per cent. Meanwhile, the total minutes played in other stake bins did not change by more than 15 per cent in either direction (as shown in Table 4.1). Thus, we assume that all "affected gamblers" moved from the bins above £50 to those between £30 and £50.

Table 4.1
Impact of £50 Soft Cap on B2 Minutes Played

	Total Minutes		
Stake Bin (avg per session)	Before £50 regs	After £50 regs	% change
25p or less	9,609,145	10,430,237	8.5%
26p to 50p	41,535,371	47,265,205	13.8%
51p to £1	92,689,957	98,672,891	6.5%
£1.01 to £2	195,307,941	187,029,784	-4.2%
£2.01 to £5	369,853,935	351,088,489	-5.1%
£5.01 to £10	339,361,516	320,624,509	-5.5%
£10.01 to £20	310,172,947	310,545,223	0.1%
£20.01 to £30	139,614,784	158,265,121	13.4%
£30.01 to £40	73,335,167	104,155,745	42.0%
£40.01 to £50	44,128,712	107,154,587	142.8%
£50.01 to £75	62,140,622	17,730,085	-71.5%
£75.01 to £99.99	47,815,774	20,647,084	-56.8%
£100	1,886,101	1,244,535	-34.0%
Total	**1,733,958,910**	**1,743,840,395**	**0.6%**

Source: NERA analysis on Gambling Commission data. Note, data includes Mixed/Combination sessions.

Third, we calculate the "affected minutes" (ie. the minutes played by the affected gamblers) as the difference in total minutes within the relevant bins before and after implementation. In this case, we calculate that there were 72 million more minutes played in £50+ sessions before implementation, and 94 million more minutes played in £30-50 sessions after implementation. Therefore, we calculate that these "affected minutes" increased by 30 per cent due to the soft cap.[30]

[30] We tested a range of methods to account for underlying growth in the "unaffected minutes", which would have the effect of changing the size of the "affected minutes" in the relevant categories. However, there is no clear reason to believe this to be negative or positive, so we have assumed it to be zero.

Finally, among these "affected minutes", we calculate that the average stake size before the £50 soft cap was £71.61 and that the average stake size after was £41.72 (using midpoint estimates of each bin).

For applying to the hypothetical £2 maximum stake, we calculate two unit rates:

- Using the £29.89 decrease in the average stake size, we calculate a 1.0 per cent increase in total minutes for each £1 decrease in amount staked; and
- Using the change in the natural logarithm of the average stakes and average session length, we calculate an *elasticity* of 0.48 per cent.[31] In other words, we estimate that a 1 per cent decrease in average stakes corresponds to a 0.48 per cent increase in session length. We assume that this elasticity is constant at any stake level. While more complicated to calculate, this approach is more intuitive, because it effectively measures the extent to which players try to stake the same total amount during a session.

4.4. Four Scenarios to Model the Change in Behaviour Following a £2 Maximum Stake

In this section, we model the change in behaviour for FOBT players from the imposition of a £2 maximum stake. In practice, there is a spectrum of potential responses consumers previously gambling above the maximum could have to the imposition of a lower maximum:

- They could compensate for the lower maximum stake by playing for longer. For example, someone who would have otherwise played 10 spins at £100 per spin could now play 500 spins at £2 per spin, thereby staking the same amount (and leaving the LBO's revenue unchanged);
- They could switch to playing other games, such as B3 machines, which have a £2 maximum stake, £500 maximum prize, and 2.5 second minimum spin time.
- They could continue to play and not alter their behaviour beyond the stake size. For example, someone who would have otherwise played 10 spins at £100 per spin would now play 10 spins at £2 per spin;
- They could play FOBTs in other locations, such as casinos or arcades. However, there are only 147 casinos in Great Britain (many of which do not have any FOBTs),[32] offering a different atmosphere than LBOs. Machines in other venues, such as arcades, bingo halls, pubs and clubs, already have maximum stakes of £2 or lower. Thus, these are unlikely to be attractive substitutes.
- They could play on illegal FOBTs. However, there is no evidence of any illegal operation of FOBTs in any UK premises, according to the Campaign for Fairer Gambling. There is therefore no basis for suggesting illegal FOBT gambling as a consequence of stake reduction.

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[31] $e = \left|\frac{\Delta \ln(TotalMinutes)}{\Delta \ln(AverageStake)}\right| = \left|\frac{\ln(96\ million) - \ln(72\ million)}{\ln(41.8) - \ln(71.61)}\right| = 0.53$

[32] Gambling Commission Industry Statistics, May 2017

- They could stop playing FOBTs altogether. This could occur for B2 players who have a particular affinity for or addiction to the game of roulette, and it is no longer offered if B2 games become obsolete. B3 games also have a different risk-reward structure from roulette: the maximum payout in roulette occurs with a 1 in 37 probability, while a £500 prize on a £2 stake on a B3 game is considerably less likely. Thus, for some B2/roulette gamblers, B3 gambling may be a fundamentally different experience and may not be a viable alternative.

In practice, the consumer response is likely to be a combination of the above. To estimate a range of plausible outcomes, we apply the findings from the £50 soft cap natural experiment to a £2 maximum stake. To capture the uncertainty in how consumers will react to such a maximum stake, we define a set of scenarios, each defined by a percentage change in B2 revenues (estimated as the combination of B2 Excl Slots and Mixed/Combination sessions) and a change in B3 revenues arising from a change in consumer behaviour. For reference, we estimate that sector-wide B2 revenues in 2016/17 are £1,497 million and B3 revenues are £310 million.[33]

First, we split players into three groups:

- **B2 Excluding Slots**: These players exclusively play roulette, which earns the machine a return of 2.7 per cent (1/37). B2 games have a minimum play time of 20 seconds per spin, but the Gambling Commission's machines data implies that the average play time (ie. for a single spin) in this category is 36 seconds.
- **Mixed/Combination**: These players play a mix of B2 and B3 content. For simplicity, we treat these sessions as a component of B2 revenue in an LBO's profit and loss sheet. We assume that sessions with a lower average stake involve relatively more B3 content, so we assume that a (hypothetical) session with an average stake of £0 would have the same gross gambling yield of a B3 game (8.03 per cent) and that a session with an average stake of £100 would have the same gross gambling yield of a B2 game (2.7 per cent). The GGY of other average stake sizes is linearly interpolated between these two points. The Gambling Commission's machines data implies that the average play time for a Mixed/Combination session is 10 seconds, which is only possible in sessions dominated by B3 play. We therefore assume that sessions with higher average stakes also have a higher average play time.[34]
- **B3 Slots:** These players play exclusively B3 content, which gives a GGY of 8.03 per cent. While players can theoretically play up to every 2.5 seconds, the Gambling Commission's machines data shows that the average play time is 6 seconds.

Second, we hypothesise a range of plausible changes in behaviour in each of these three groups. We assume that these players adjust their behaviour immediately once the £2 maximum stake is implemented.

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[33] We use the total FOBT GGY presented in the Gambling Commission's May 2017 Industry Statistics, and split with a 83:17 ratio to B2 and B3 games, calculated from net expenditure data in the Gambling Commission machines dataset (we categorise Mixed/Combination games as B2 games, and exclude B2 Slots games from this ratio).

[34] Namely, we assume that a session with an average stake size of £100 would have an average play time of 36 seconds (like B2 Excluding Slots), and we choose a lower bound such that the average session length is 10 seconds.

We discuss the four scenarios below:

- In the **Play Longer (Factor)** scenario, we assume that affected gamblers increase their play time in response to a lower maximum stake. Using the midpoint approach, we estimate that the average stake above £2 (ie. the "affected stakes" under a £2 maximum stake) for B2 Excluding Slots is £19.15 and for Mixed/Combination is £9.92. To move to a £2 stake (we assume the affected gamblers stake at the new maximum), these gamblers would have to decrease their stake by a factor of 9.6 and 5 (i.e. £19.15/2 and £9.92/2), leading to an increase in play time of 299 per cent and 217 per cent, respectively. After applying this growth rate to the affected minutes, we add to the existing minutes below £2. Using the play rates GGYs described above, we calculate a change in B2 revenue of minus 74.3 per cent (suggesting that 74.3 per cent of B2 yields are lost in this scenario). We assume that B3 gaming remains unchanged. This corresponds with an overall decrease in FOBT revenues of 62 per cent.
- In the **Play Longer (Linear)** scenario, we assume that affected gamblers increase their play time in response to a lower maximum stake. Using the midpoint approach, we estimate that the average stake above £2 (ie. the "affected stakes" under a £2 maximum stake) for B2 Excluding Slots is £19.15 and for Mixed/Combination is £9.92. To move to a £2 stake (we assume the affected gamblers stake at the new maximum), these gamblers would have to decrease their stake by £17.15 and £7.92, leading to an increase in play time of 17 per cent and 8 per cent, respectively. After applying this growth rate to the affected minutes, we add to the existing minutes below £2. Using the play rates GGYs described above, we calculate a change in B2 revenue of minus 91.6 per cent (suggesting that 91.6 per cent of B2 yields are lost in this scenario). We assume that B3 gaming remains unchanged. This corresponds with an overall decrease in FOBT revenues of 76 per cent.

In the second two scenarios, we no longer assume that B2 react are homogeneously. In particular, we assume that some players who exclusively play B2 Excluding Slots (i.e. roulette) are partial to roulette as a game and do not view B3 games as a substitute, while those who play Mixed/Combination sessions are willing to switch to B3 games.

- In the **Switch to B3 (High)** scenario, we assume that:
  - Roulette players (ie. those in the B2 Excluding Slots category) who previously staked above £2 now stake the new maximum on B2 games, and increase their play time according to the factor approach described above. We assume that those staking below £2 continue to play as before.
  - Mixed/Combination players (including those below £2) switch to playing B3 games, and increase their play time such that they spend the same amount of money as previously. As shown in Table 4.4, we model this by moving the LBO revenues from these players directly into B3 revenues. The Mixed/Combination category thus ceases to exist in this scenario.
  - These assumptions translate into a 79.6 per cent decrease in B2 revenues and a 254 per cent increase in B3 revenue. Overall, FOBT revenues decrease by 22 per cent.
- In the **Switch to B3 (Low)** scenario, we assume that B2 games become obsolete and are no longer offered. Consumers react as follows:

- Roulette players (ie. those in the B2 Excluding Slots category) cease to play FOBTs at all, as the content is no longer offered.
- Mixed/Combination players (including those below £2) switch to playing B3 games, and do not increase their play time.
- These assumptions translate into a 100 per cent decrease in B2 revenues and a 220 per cent increase in B3 revenue. Overall, FOBT revenues decrease by 45 per cent.

Table 4.2, Table 4.3, Table 4.4and Table 4.5 shows our calculations by player type and average stake size in each of these four scenarios. The light red and green highlights indicate the source of minutes or revenue that changes, and the dark red and green highlights indicate its destination, though there may be adjustments not shown.

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Table 4.2
Change in Revenues: Play Longer (Factor/Elasticity)

Elasticity/Factor		B2 Roulette						Mixed/Combination						
Range	Point Estimate	Plays per Minute	GGY Rate	Minutes before £2 Max	Revenues before £2 Max	Minutes After £2 Max	Revenues after £2 Max	Plays per Minute	GGY Rate	Minutes before £2 Max	Revenues before £2 Max	Minutes After £2 Max	Revenues after £2 Max	Increase in B2 Revenues
25p or less	£0.13	1.67	2.70%	14,842	87	14,842	87	6.75	8.02%	10,415,395	733,128	10,415,395	60,927	
26p to 50p	£0.38	1.67	2.70%	58,412	999	58,412	999	6.70	8.01%	47,206,793	9,623,303	47,206,793	807,194	
51p to £1	£0.76	1.67	2.70%	17,570,900	600,894	17,570,900	600,894	6.62	7.99%	81,101,991	32,606,881	81,101,991	2,773,545	
£1.01 to £2	£1.50	1.67	2.70%	70,739,727	4,774,685	70,739,727	4,774,685	6.48	7.95%	116,290,057	89,830,975	116,290,057	7,849,173	
N/A	£2.00	1.67	2.70%			4,302,464,943	387,201,825					993,533,152	89,413,361	
£2.01 to £5	£3.50	1.67	2.70%	202,642,321	31,914,515		0	6.12	7.84%	148,446,168	224,499,541	0	0	
£5.01 to £10	£7.50	1.67	2.70%	245,210,030	82,754,106		0	5.51	7.63%	75,414,479	200,307,998	0	0	
£10.01 to £20	£15.00	1.67	2.70%	258,368,950	174,390,025		0	4.64	7.23%	52,176,273	217,066,574	0	0	
£20.01 to £30	£25.00	1.67	2.70%	138,451,661	155,750,065		0	3.84	6.70%	19,813,461	108,435,609	0	0	
£30.01 to £40	£35.00	1.67	2.70%	94,584,146	148,962,327		0	3.27	6.16%	9,571,600	58,804,579	0	0	
£40.01 to £50	£45.00	1.67	2.70%	101,974,753	206,488,198		0	2.85	5.63%	5,179,835	30,501,095	0	0	
£50.01 to £75	£62.50	1.67	2.70%	16,096,155	45,268,094		0	2.32	4.70%	1,633,930	8,829,084	0	0	
£75.01 to £99.99	£87.50	1.67	2.70%	19,819,664	78,035,890		0	1.84	3.37%	827,420	4,061,690	0	0	
£100	£100.00	1.67	2.70%	1,244,535	5,600,116		0	1.67	2.70%	0	0	0	0	
Total					**934,540,000**		**392,578,489**				**985,300,458**		**100,904,200**	**-74.3%**

Table 4.3
Change in Revenues: Play Longer (Linear)

Linear		B2 Roulette						Mixed/Combination						
Range	Point Estimate	Plays per Minute	GGY Rate	Minutes before £2 Max	Revenues before £2 Max	Minutes After £2 Max	Revenues after £2 Max	Plays per Minute	GGY Rate	Minutes before £2 Max	Revenues before £2 Max	Minutes After £2 Max	Revenues after £2 Max	Increase in B2 Revenues
25p or less	£0.13	1.67	2.70%	14,842	87	14,842	87	6.75	8.02%	10,415,395	733,128	10,415,395	60,927	
26p to 50p	£0.38	1.67	2.70%	58,412	999	58,412	999	6.70	8.01%	47,206,793	9,623,303	47,206,793	807,194	
51p to £1	£0.76	1.67	2.70%	17,570,900	600,894	17,570,900	600,894	6.62	7.99%	81,101,991	32,606,881	81,101,991	2,773,545	
£1.01 to £2	£1.50	1.67	2.70%	70,739,727	4,774,685	70,739,727	4,774,685	6.48	7.95%	116,290,057	89,830,975	116,290,057	7,849,173	
N/A	£2.00	1.67	2.70%			1,263,648,305	113,722,468					337,904,180	30,409,804	
£2.01 to £5	£3.50	1.67	2.70%	202,642,321	31,914,515		0	6.12	7.84%	148,446,168	224,499,541	0	0	
£5.01 to £10	£7.50	1.67	2.70%	245,210,030	82,754,106		0	5.51	7.63%	75,414,479	200,307,998	0	0	
£10.01 to £20	£15.00	1.67	2.70%	258,368,950	174,390,025		0	4.64	7.23%	52,176,273	217,066,574	0	0	
£20.01 to £30	£25.00	1.67	2.70%	138,451,661	155,750,065		0	3.84	6.70%	19,813,461	108,435,609	0	0	
£30.01 to £40	£35.00	1.67	2.70%	94,584,146	148,962,327		0	3.27	6.16%	9,571,600	58,804,579	0	0	
£40.01 to £50	£45.00	1.67	2.70%	101,974,753	206,488,198		0	2.85	5.63%	5,179,835	30,501,095	0	0	
£50.01 to £75	£62.50	1.67	2.70%	16,096,155	45,268,094		0	2.32	4.70%	1,633,930	8,829,084	0	0	
£75.01 to £99.99	£87.50	1.67	2.70%	19,819,664	78,035,890		0	1.84	3.37%	827,420	4,061,690	0	0	
£100	£100.00	1.67	2.70%	1,244,535	5,600,116		0	1.67	2.70%	0	0	0	0	
Total					**934,540,000**		**119,099,132**				**985,300,458**		**41,900,643**	**-91.6%**

Table 4.4
Change in Revenues: Switch to B3 (High)

B2 Change		B2 Roulette						Mixed/Combination						
Range	Point Estimate	Plays per Minute	GGY Rate	Minutes before £2 Max	Revenues before £2 Max	Minutes After £2 Max	Revenues after £2 Max	Plays per Minute	GGY Rate	Minutes before £2 Max	Revenues before £2 Max	Minutes After £2 Max	Revenues after £2 Max	Increase in B2 Revenues
25p or less	£0.13	1.67	2.70%	14,842	87	14,842	87	6.75	8.02%	10,415,395	733,128	0	0	
26p to 50p	£0.38	1.67	2.70%	58,412	999	58,412	999	6.70	8.01%	47,206,793	9,623,303	0	0	
51p to £1	£0.76	1.67	2.70%	17,570,900	600,894	17,570,900	600,894	6.62	7.99%	81,101,991	32,606,881	0	0	
£1.01 to £2	£1.50	1.67	2.70%	70,739,727	4,774,685	70,739,727	4,774,685	6.48	7.95%	116,290,057	89,830,975	0	0	
N/A	£2.00	1.67	2.70%			4,302,464,943	387,201,825							
£2.01 to £5	£3.50	1.67	2.70%	202,642,321	31,914,515		0	6.12	7.84%	148,446,168	224,499,541	0	0	
£5.01 to £10	£7.50	1.67	2.70%	245,210,030	82,754,106		0	5.51	7.63%	75,414,479	200,307,998	0	0	
£10.01 to £20	£15.00	1.67	2.70%	258,368,950	174,390,025		0	4.64	7.23%	52,176,273	217,066,574	0	0	
£20.01 to £30	£25.00	1.67	2.70%	138,451,661	155,750,065		0	3.84	6.70%	19,813,461	108,435,609	0	0	
£30.01 to £40	£35.00	1.67	2.70%	94,584,146	148,962,327		0	3.27	6.16%	9,571,600	58,804,579	0	0	
£40.01 to £50	£45.00	1.67	2.70%	101,974,753	206,488,198		0	2.85	5.63%	5,179,835	30,501,095	0	0	
£50.01 to £75	£62.50	1.67	2.70%	16,096,155	45,268,094		0	2.32	4.70%	1,633,930	8,829,084	0	0	
£75.01 to £99.99	£87.50	1.67	2.70%	19,819,664	78,035,890		0	1.84	3.37%	827,420	4,061,690	0	0	
£100	£100.00	1.67	2.70%	1,244,535	5,600,116		0	1.67	2.70%	0	0	0	0	
Total					**934,540,000**		**392,578,489**				**985,300,458**		**0**	**-79.6%**

B3 Change		B3 Games						
Range	Point Estimate	Plays per Minute	GGY Rate	Minutes before £2 Max	Revenues before £2 Max	Minutes After £2 Max	Revenues after £2 Max	Increase in B3 Revenues
25p or less	£0.25	11	8.03%	157,263,827	34,675,212	157,263,827	34,675,212	
26p to 50p	£0.50	11	8.03%	136,183,396	60,054,346	136,183,396	60,054,346	
51p to £1	£1.00	11	8.03%	135,539,929	119,541,177	135,539,929	119,541,177	
£1.01 to £2	£2.00	11	8.03%	98,269,013	173,339,229	98,269,013	173,339,229	
Above	£2.00	11	8.03%		0		985,300,458	
Total					**387,609,964**		**1,372,910,421**	**254%**

Table 4.5
Change in Revenues: Switch to B3 (Low)

B2 Change		B2 Roulette						Mixed/Combination						
Range	Point Estimate	Plays per Minute	GGY Rate	Minutes before £2 Max	Revenues before £2 Max	Minutes After £2 Max	Revenues after £2 Max	Plays per Minute	GGY Rate	Minutes before £2 Max	Revenues before £2 Max	Minutes After £2 Max	Revenues after £2 Max	Increase in B2 Revenues
25p or less	£0.13	1.67	2.70%	14,842	87	0	0	6.75	8.02%	10,415,395	733,128	0	0	
26p to 50p	£0.38	1.67	2.70%	58,412	999	0	0	6.70	8.01%	47,206,793	9,623,303	0	0	
51p to £1	£0.76	1.67	2.70%	17,570,900	600,894	0	0	6.62	7.99%	81,101,991	32,606,881	0	0	
£1.01 to £2	£1.50	1.67	2.70%	70,739,727	4,774,685	0	0	6.48	7.95%	116,290,057	89,830,975	0	0	
N/A	£2.00													
£2.01 to £5	£3.50	1.67	2.70%	202,642,321	31,914,515	0	0	6.12	7.84%	148,446,168	249,360,780	0	0	
£5.01 to £10	£7.50	1.67	2.70%	245,210,030	82,754,106	0	0	5.51	7.63%	75,414,479	237,753,028	0	0	
£10.01 to £20	£15.00	1.67	2.70%	258,368,950	174,390,025	0	0	4.64	7.23%	52,176,273	262,649,250	0	0	
£20.01 to £30	£25.00	1.67	2.70%	138,451,661	155,750,065	0	0	3.84	6.70%	19,813,461	127,254,567	0	0	
£30.01 to £40	£35.00	1.67	2.70%	94,584,146	148,962,327	0	0	3.27	6.16%	9,571,600	67,500,856	0	0	
£40.01 to £50	£45.00	1.67	2.70%	101,974,753	206,488,198	0	0	2.85	5.63%	5,179,835	37,377,755	0	0	
£50.01 to £75	£62.50	1.67	2.70%	16,096,155	45,268,094	0	0	2.32	4.70%	1,633,930	11,149,586	0	0	
£75.01 to £99.99	£87.50	1.67	2.70%	19,819,664	78,035,890	0	0	1.84	3.37%	827,420	4,484,358	0	0	
£100	£100.00	1.67	2.70%	1,244,535	5,600,116	0	0	1.67	2.70%	0	0	0	0	
Total					**934,540,000**		**0**				**1,130,324,467**		**0**	**-100.0%**

B3 Change		B3 Games						
Range	Point Estimate	Plays per Minute	GGY Rate	Minutes before £2 Max	Revenues before £2 Max	Minutes After £2 Max	Revenues after £2 Max	Increase in B3 Revenues
25p or less	£0.25	11	8.03%	157,263,827	34,675,212	167,679,222	36,971,710	
26p to 50p	£0.50	11	8.03%	136,183,396	60,054,346	183,390,189	80,871,663	
51p to £1	£1.00	11	8.03%	135,539,929	119,541,177	216,641,920	191,070,117	
£1.01 to £2	£2.00	11	8.03%	98,269,013	173,339,229	214,559,070	378,466,241	
Above	£2.00	11	8.03%		0	313,063,164	552,220,137	
Total					**387,609,964**		**1,239,599,868**	**220%**

4.5. Conclusion

Using the natural experiment provided by the recent change in regulations on stakes above £50, we have been able to formulate assumptions on the amount of B2 revenue that would be lost in the event of a £2 maximum stake. We define a range of four scenarios of plausible consumer responses, with some consumers spending more time playing B2 machines and some switching to B3 machines.

In the Play Longer (Factor) scenario, we assume that all affected gamblers continue to play B2 machines, and increase their play time by between 200 and 300 per cent to account for the lower maximum stake. In the Play Longer (Linear) scenario, we assume that all affected gamblers continue to play B2 machines, but only increase their play time by between 8 and 17 per cent to account for the lower maximum stake. In the Switch to B3 (High) scenario, we assume that Roulette players continue to play B2 roulette games with a £2 maximum stake and increase their maximum stake by 300 per cent, while Mixed/Combination players switch to B3 games and spend the same amount of money as before. In the Switch to B3 (Low) scenario, we assume that B2 games become obsolete, causing Roulette players cease playing FOBTs, while Mixed/Combination players switch to B3 games and do not increase their play time.

These scenarios translate into an increase in B3 revenues of between 0 per cent and 254 per cent, and a decrease in B2 revenues of between 74 per cent and 100 per cent. Combining the changes to B2 and B3 scenarios, our scenarios project a decrease in FOBT revenues of between 22 per cent (in the Switch to B3 High scenario) and 76 per cent (in the Play Longer Linear scenario).

5. Impact on LBOs

This chapter describes the input assumptions on LBOs' distribution, revenues and costs and inputs them into illustrative P&L sheets. Using the iterative process described in Chapter 3, we then forecast the impact of a change in maximum stake on the bookmaking sector, in terms of the number of shops closed and the profits lost from the sector.

This chapter proceeds as follows:

- Section 5.1 sets out our assumptions on the distribution of LBOs, in terms of size, turnover and geographic distribution;
- Section 5.2 sets out our assumptions on LBO revenues, both from FOBTs and over-the-counter betting;
- Section 5.3 sets out our assumptions on LBOs' costs;
- Section 5.4 combines the previous sections into our initial P&L sheets; and
- Section 5.5 presents results and concludes.

5.1. Distributional assumptions on LBOs

Our model requires assumptions on the distribution of LBOs by size, turnover level and geographic distribution. The former two impact LBOs' revenues and costs, while geographic distribution affects how much revenue is diverted if an LBO closes. We are not aware of any major updates to this information since our 2014 report, so we mainly rely on the assumptions we used then.

5.1.1. Size distribution

We categorise LBOs into three physical sizes: 30 per cent of LBOs are small (40 square metres); 40 per cent are medium (80 square metres); and 30 per cent are large (120 square metres). Larger LBOs have higher revenues (as they have more FOBTs and can accommodate more OTC betting), but also have higher costs (such as rent and labour).

In order for a small LBO to remain open, we assume that it requires annual profits of £5,000, before corporate taxes. A medium LBO requires £7,500 and a large LBO requires £10,000. These are the same illustrative assumptions from our previous report. By contrast, the ABB considers that LBOs earning less than £20,000 per year, regardless of size, are at risk of closure.[35]

5.1.2. Turnover distribution

We also assume four levels of turnover of LBOs to reflect variation in LBO profitability: low, medium-low, average and high. We assume that a low-turnover LBO (15 per cent of all LBOs) has a turnover level that is 73 per cent of the average for its size. A medium-low LBO

[35] ABB (2015): *Written submission from the ABB*, page 8. Link: http://www.parliament.scot/ S4_LocalGovernmentandRegenerationCommittee/ Inquiries/20_-_AssociationOfBritishBookmakers.pdf

(15 per cent of all LBOs) has 80 per cent of the turnover; an average LBO (35 per cent of all LBOs) has 100 per cent; and a high turnover LBO (35 per cent of all LBOs) has 120 per cent.

We assume that the turnover and size categories are distributed independently, so, for example, 30 per cent of high-turnover LBOs are small, while 35 per cent of large LBOs have average turnover. Note that the turnover multipliers are relative the LBO's size, so a high-turnover LBO has higher revenues if it is large than it would if it were small.

5.1.3. Distribution summary

The number of LBOs is 8,788.[36] We scale our assumptions accordingly. Table 5.1 gives the distribution of LBOs by physical size and turnover level.

Table 5.1
LBO Distribution

		Physical Size			
		Small	Medium	Large	**Total**
Turnover	Low1	392	523	392	**1,306**
	Low2	392	523	392	**1,306**
	Ave	926	1,235	926	**3,088**
	High	926	1,235	926	**3,088**
	Total	**2,636**	**3,515**	**2,636**	**8,788**

Source: NERA assumptions, Valuation Office Agency, Gambling Commission

In our 2014 report, we found that 77 per cent of LBOs were located in the same postcode district (the first half of a full postcode plus the first digit of the second half, eg. SE5 8) as another LBO. We assume that, in the event of an LBO's closure, 75 per cent of its revenues are diverted to other LBOs. As a simplification, we assume that they are diverted uniformly across all remaining LBOs. We give further details of our distributional assumptions in Appendix A.1.

5.2. Revenues

LBOs' revenue comes from two sources: FOBTs and OTC betting. This section outlines our assumptions for each of these categories. We expand on our revenue assumptions in Appendix A.2.

5.2.1. FOBT revenue

The Gambling Commission gives data on B2, B3 and C total gross margin (ie. the yield for the LBO) and on the number of machines in LBOs. Most machines are B2, as the Gambling Commission categorises machines by the highest game available on that machine. In other words, all B3 gambling yields on machines that also offer B2 games fall into the B2 gross margin category.

[36] According to the Gambling Commission's May 2017 Industry Statistics.

Using the recent Gambling Commission dataset on net expenditure by gaming category, we calculate that about 17 per cent of FOBT gross margin comes from B3/C category games (primarily played on B2 machines).[37] We therefore split the gross margin per FOBT into a B2 component and a B3/C component based on this proportion. As described in Section 4.4, we then decrease the B2 by between 74 per cent and 100 per cent, and increase B3 revenues by between 0 per cent and 254 per cent, depending on the scenario.

Gambling regulations limit LBOs to four FOBTs each. There are nearly four times as many FOBTs as there are LBOs, meaning that most shops have hit that maximum. We assume that the number of FOBTs varies by shop size, with small shops having 3.7, medium shops having 3.9 and large shops having 4. We also scale this revenue by the turnover multipliers specified in Section 5.1.

5.2.2. OTC revenue

The Gambling Commission provides data on total OTC betting.[38] We assume this varies by size and turnover range, proportionally, so a small (average turnover) LBO has half the OTC margin of a medium sized LBO and a third that of a large LBO.

In the event of a reduction in B2 revenue, we assume that some will be diverted to OTC betting. In its analyst report for William Hill, Morgan Stanley also assumes that some revenue diverted from FOBTs will be recycled into OTC bets. [39]

Sector-wide gambling data showed that OTC gross margins were decreasing gradually during the 1990s, and then decreased much more sharply starting in 2002 when FOBTs began to be introduced into LBOs. Using data from Ladbrokes' annual reports and assuming that the trend of the 1990s would have continued in the absence of FOBTs, we estimate that 47.2 per cent of FOBT gross margins would divert to OTC if FOBTs were eliminated. We use this as an upper limit for the amount of lost B2 revenue that could be diverted to OTC betting.

However, this period has also coincided with a digital revolution, both with respect to the internet and with respect to smart phones. Online betting typically covers the same events (horse racing, football, etc) as OTC betting, so it is difficult to say that LBO-based betting has suffered exclusively as a result of FOBTs.

Using Ladbrokes' data on its digital betting as a proxy for sector-wide online betting, we find that if the rise in digital betting came exclusively at the expense of LBO OTC betting, then no lost FOBT revenues would be expected to divert to OTC betting. We use this as a lower limit for the amount of lost B2 revenue that could be diverted to OTC betting.

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[37] This is taken from the average net expenditure in each category multiplied by the number of sessions. Inspired Gaming and Scientific Games provide different average net expenditures, so we take an average across the two suppliers. We include Mixed/Combination sessions as B2 expenditure (because most of the money is spent on B2 games) and do not include B2 Slots.

[38] We understand from the Campaign for Fairer Gambling that this data also includes Self Service Betting Terminals (SSBTs), which allow machine-based bets on the outcomes of various events.

[39] Morgan Stanley (5 January 2016): *Leisure and Hotels, 2016 Outlook*, page 44

Digital betting did not necessarily come at exclusively at the expense of OTC betting without reaching any new consumers, as the clientele are different. Digital bettors are more likely to be young and tech-savvy, while OTC bettors may be older and prefer the traditional in-person nature of placing bets in a bookmaker's office. Therefore we also assume a middle level of OTC diversion, which is an unweighted average of the upper- and lower-bound assumptions, or 23.6 per cent.

5.2.3. Revenue not modelled

There may be other sources of revenue tied to LBOs that we do not explicitly consider. For instance, there may be benefits to having more LBOs relating to media rights, but the commercial terms of media rights are not publicly available. Bookmakers may therefore wish to keep physical locations open even when the profit and loss sheets of particular locations do not justify staying open. We do not factor this into our model, but we note that excluding it is a conservative choice.

Our model also assumes that closure decisions are made on short run profits. If an LBO drops beneath the profit threshold, it closes and incurs no further costs (ie. closure costs or ongoing sunk costs). In reality, a bookmaker may wish to keep a location open if expects profits to rise in the future or if there are some costs it will continue to incur after closing.

5.2.4. Revenue scenarios

We consider 12 different revenue scenarios, testing all combinations of player response on FOBTs and OTC substitution. We summarise these scenarios below in Table 5.2, showing the change in B2 and B3 revenue, followed by the diversion of lost FOBT revenues to OTC betting.

Table 5.2
12 Different Scenarios

			OTC Subsitution		
			Low	Medium	High
Player Response	Longer Play (Linear)	Change in B2	-91.6%	-91.6%	-91.6%
		Change in B3	0%	0%	0%
		Diversion to OTC	0.0%	23.6%	47.2%
	Longer Play (Factor)	Change in B2	-74.3%	-74.3%	-74.3%
		Change in B3	0%	0%	0%
		Diversion to OTC	0.0%	23.6%	47.2%
	Switch to B3 (High)	Change in B2	-79.6%	-79.6%	-79.6%
		Change in B3	254%	254%	254%
		Diversion to OTC	0.0%	23.6%	47.2%
	Switch to B3 (Low)	Change in B2	-100.0%	-100.0%	-100.0%
		Change in B3	220%	220%	220%
		Diversion to OTC	0.0%	23.6%	47.2%

5.3. Costs

LBOs face a range of costs, some relating to their size and/or turnover level, and some that will change under the scenarios we run. Costs comprise taxes, staff costs, rent, license costs, depreciation, various overhead costs and others.

For example, LBOs must pay a machine games duty of 25 per cent of earnings from Category B2 machines and a 15 per cent tax on earnings from OTC betting. The machine games duty drops to 20 per cent on machines with a maximum less than or equal to £5 (ie. Category B3 machines).[40] Because the hypothetical maximum stake is £2, we assume that LBOs pay 20 per cent on its machines, and that DCMS does not re-visit these rates.

We provide more detail on cost items in Appendix A.3.

5.4. Combined Profit and Loss Sheet

Having formed assumptions on the 2017-18 revenues and costs of LBOs in the 12 distributional categories, we combine this into a profit and loss sheet. We give our starting P&L sheet in Table 5.3 below.

[40] https://www.gov.uk/guidance/machine-games-duty

Table 5.3
Status Quo Profit and Loss by LBO Type

Annual, £													
	Size	**Small**	**Small**	**Small**	**Small**	**Medium**	**Medium**	**Medium**	**Medium**	**Large**	**Large**	**Large**	**Large**
	Turnover	**Low1**	**Low2**	**Ave**	**High**	**Low1**	**Low2**	**Ave**	**High**	**Low1**	**Low2**	**Ave**	**High**
	Number	392	392	926	926	523	523	1,235	1,235	392	392	926	926
Turnover	B2	3,090,088	3,398,971	4,248,713	5,098,456	3,286,730	3,615,269	4,519,086	5,422,903	3,371,005	3,707,968	4,634,960	5,561,952
	B3/C	293,589	322,936	403,670	484,404	312,272	343,486	429,358	515,229	320,279	352,294	440,367	528,440
	Over the counter - horses	190,518	209,561	261,952	314,342	381,035	419,123	523,904	628,684	571,553	628,684	785,856	943,027
	Over the counter - other	175,115	192,620	240,774	288,929	350,230	385,239	481,549	577,859	525,346	577,859	722,323	866,788
	Total	**3,749,310**	**4,124,087**	**5,155,109**	**6,186,131**	**4,330,268**	**4,763,117**	**5,953,896**	**7,144,675**	**4,788,182**	**5,266,804**	**6,583,506**	**7,900,207**
Payout	B2	2,976,064	3,273,549	4,091,936	4,910,323	3,165,450	3,481,865	4,352,332	5,222,798	3,246,615	3,571,144	4,463,930	5,356,716
	B3/C	270,014	297,004	371,255	445,506	287,196	315,904	394,880	473,857	294,560	324,004	405,006	486,007
	Over the counter - horses	165,667	182,227	227,784	273,340	331,334	364,454	455,567	546,680	497,001	546,680	683,351	820,021
	Over the counter - other	140,323	154,350	192,937	231,525	280,646	308,700	385,874	463,049	420,970	463,049	578,812	694,574
	Total	**3,552,068**	**3,907,129**	**4,883,911**	**5,860,694**	**4,064,627**	**4,470,923**	**5,588,653**	**6,706,384**	**4,459,146**	**4,904,878**	**6,131,098**	**7,357,317**
Gross margin	B2	114,024	125,422	156,778	188,133	121,280	133,403	166,754	200,105	124,390	136,824	171,030	205,236
	B3/C	23,575	25,932	32,415	38,898	25,075	27,582	34,477	41,373	25,718	28,289	35,361	42,434
	Over the counter - horses	24,851	27,335	34,168	41,002	49,701	54,669	68,337	82,004	74,552	82,004	102,505	123,006
	Over the counter - other	34 792	38 270	47 837	57 405	69 584	76 540	95 674	114 809	104 376	114 809	143 512	172 214
	Total	**197,242**	**216,958**	**271,198**	**325,437**	**265,641**	**292,194**	**365,243**	**438,291**	**329,036**	**361,926**	**452,408**	**542,890**
Costs	General/pool betting duty	8,946	9,841	12,301	14,761	17,893	19,681	24,602	29,522	26,839	29,522	36,902	44,283
	Machine games duty	27,520	30,271	37,838	45,406	29,271	32,197	40,246	48,296	30,022	33,023	41,278	49,534
	Horseracing levy	2,671	2,938	3,673	4,408	5,343	5,877	7,346	8,815	8,014	8,815	11,019	13,223
	Staff costs	66,303	70,204	78,004	89,705	88,405	93,605	104,005	119,606	103,139	109,206	121,340	139,541
	Rent	10,308	10,308	10,308	10,308	20,617	20,617	20,617	20,617	30,925	30,925	30,925	30,925
	Rates	3,701	3,701	3,701	3,701	6,742	6,742	6,742	6,742	10,631	10,631	10,631	10,631
	Premises licence	131	131	131	131	180	180	180	180	295	295	295	295
	Gambling Commission licence	277	277	277	277	277	277	277	277	277	277	277	277
	SIS	21,334	21,334	21,334	21,334	21,334	21,334	21,334	21,334	21,334	21,334	21,334	21,334
	Turf	7,381	7,381	7,381	7,381	7,381	7,381	7,381	7,381	7,381	7,381	7,381	7,381
	Electricity/gas/water	3,503	3,503	3,503	3,503	6,564	6,564	6,564	6,564	9,626	9,626	9,626	9,626
	Papers	1,681	1,681	1,681	1,681	1,681	1,681	1,681	1,681	1,681	1,681	1,681	1,681
	Football licence	672	672	672	672	672	672	672	672	672	672	672	672
	Tote machine	336	336	336	336	336	336	336	336	336	336	336	336
	Stationary/advertising	2,717	2,754	2,854	2,955	3,083	3,156	3,357	3,558	3,449	3,558	3,860	4,161
	Security/microfilm	1,620	1,656	1,757	1,857	1,985	2,059	2,260	2,461	2,351	2,461	2,762	3,064
	EPOS support	1,345	1,345	1,345	1,345	1,345	1,345	1,345	1,345	1,345	1,345	1,345	1,345
	Phone/internet	2,129	2,129	2,129	2,129	2,129	2,129	2,129	2,129	2,129	2,129	2,129	2,129
	Total	**162,578**	**170,463**	**189,227**	**211,891**	**215,240**	**225,835**	**251,076**	**281,518**	**260,447**	**273,218**	**303,795**	**340,440**
	Depreciation/amortisation	10 723	10 723	10 723	10 723	21 446	21 446	21 446	21 446	32 169	32 169	32 169	32 169
	Profit	**23,941**	**35,772**	**71,248**	**102,823**	**28,955**	**44,913**	**92,720**	**135,327**	**36,420**	**56,539**	**116,443**	**170,281**

We then iterate our model following the process described in detail in Chapter 3 and summarised below. As we set out in Section 5.1, we assume that small LBOs need an annual profit of £5,000 to continue to operate. Medium LBOs need £7,500 and large LBOs need £10,000. We take this assumption from our 2014 report. Table 5.3 shows that all LBOs are comfortably above those thresholds before any intervention into the maximum stake on FOBTs. In our 2014 report, initial profit margins were lower than this, as FOBT revenues have grown substantially in the past two years.

If the profit margin of an LBO drops below the thresholds listed above, it closes. Due to the geographic proximity of LBOs to other LBOs, 75 per cent of a closed LBO diverts to other LBOs evenly, increasing their revenues. If some LBOs are still below the profit thresholds, they close and 75 per cent of their revenues divert to other LBOs. This process iterates until all LBOs are above the profit thresholds.

5.5. Results

We present the results of our 12 scenarios below, alongside the status quo. Our key results are the number and percentage of shops that close in each scenario as well as the change in sector profit relative to the status quo.

The first four scenarios assume no diversion to OTC betting. In all scenarios, we forecast some LBOs to close – up to 3,585 in the Play Longer (Linear) scenario. However, this case represents our worst case scenario for LBOs. Only 292 shops close in the Switch to B3 (High) scenario, because the higher play frequency allows players to spend a similar amount of money as previously without increasing play time. We display the results below in Table 5.4, alongside the status quo.

Table 5.4
No Diversion to OTC

No Diversion To OTC	Play Longer (Factor)	Play Longer (Linear)	Switch to B3 (High)	Switch to B3 (Low)	Status Quo
Change in B2 Revenues	-72%	-91%	-78%	-100%	0%
Change in B3 Revenues	0%	0%	254%	220%	0%
Diversion to OTC Betting	0%	0%	0%	0%	0%
Diversion to Other LBOs	75%	75%	75%	75%	75%
Remaining Shops	6,063	5,203	8,496	6,924	8,788
Shop Closures	2,725	3,585	292	1,864	0
Shop Closures (%)	31%	41%	3%	21%	0%
Total Industry Profit (£m)	341	317	532	427	807
Loss in Industry Profit (£m)	58%	61%	34%	47%	0%

The second four scenarios assume medium diversion to OTC, namely that 23.6 per cent of lost FOBT revenues divert to OTC. Three of four scenarios show shop closures above 1,000, though the Switch to B3 (High) scenario shows no closures. We display the results below in Table 5.5.

Table 5.5
Medium Diversion to OTC

Medium Diversion To OTC	Play Longer (Factor)	Play Longer (Linear)	Switch to B3 (High)	Switch to B3 (Low)	Status Quo
Change in B2 Revenues	-72%	-91%	-78%	-100%	0%
Change in B3 Revenues	0%	0%	254%	220%	0%
Diversion to OTC Betting	24%	24%	24%	24%	24%
Diversion to Other LBOs	75%	75%	75%	75%	75%
Remaining Shops	6,876	6,154	8,788	7,580	8,788
Shop Closures	1,912	2,634	0	1,208	0
Shop Closures (%)	22%	30%	0%	14%	0%
Total Industry Profit (£m)	422	413	582	478	807
Loss in Industry Profit (£m)	48%	49%	28%	41%	0%

The final four scenarios assume high (47.2 per cent) diversion of lost FOBT revenues to OTC. In all but the Play Longer (Linear) scenario, fewer than 15 per cent of LBOs close as a result of the £2 maximum stake. We display the results below in Table 5.6.

Table 5.6
High Diversion to OTC

High Diversion To OTC	Play Longer (Factor)	Play Longer (Linear)	Switch to B3 (High)	Switch to B3 (Low)	Status Quo
Change in B2 Revenues	-72%	-91%	-78%	-100%	0%
Change in B3 Revenues	0%	0%	254%	220%	0%
Diversion to OTC Betting	47%	47%	47%	47%	47%
Diversion to Other LBOs	75%	75%	75%	75%	75%
Remaining Shops	7,744	7,201	8,788	8,262	8,788
Shop Closures	1,044	1,587	0	526	0
Shop Closures (%)	12%	18%	0%	6%	0%
Total Industry Profit (£m)	491	449	649	531	807
Loss in Industry Profit (£m)	39%	44%	20%	34%	0%

Table 5.7 below summarises the impact of each of our 12 scenarios on the percentage of shop closures and sector profits. Across the 12 scenarios, we forecast that between 0 per cent and 41 per cent of LBOs will close under a £2 maximum stake, and the industry will lose between 20 per cent and 61 per cent of total profits. On average across all 12 scenarios, we forecast that 17 per cent of shops will close and the industry will lose 42 per cent of its profits, as a result of a £2 maximum stake.

Table 5.7
LBO Impacts Summary

	Shop Closures (%)				Loss in Industry Profit (%)		
	No Diversion To OTC	Medium Diversion To OTC	High Diversion To OTC		No Diversion To OTC	Medium Diversion To OTC	High Diversion To OTC
Play Longer (Linear)	34%	23%	13%		61%	49%	40%
Play Longer (Factor)	18%	9%	3%		44%	37%	31%
Switch to B3 (High)	0%	0%	0%		29%	22%	16%
Switch to B3 (Low)	16%	9%	3%		42%	37%	32%
Switch to B3 (Attrition)	13%	7%	1%		40%	35%	31%

6. Conclusion

As DCMS commences its triennial review of gambling stake sizes, it will consider the economic impact of changing the maximum stake to £2.

Relying on publicly available data from DCMS, the Gambling Commission, bookmakers and others, as well as previous submissions to DCMS by us and the ABB, we have constructed a Profit and Loss model which forecasts the impact of a £2 B2 maximum stakes on the bookmaking sector under a range of scenarios around consumer response.

Our model uses data from 2016/17 and adjusts as necessary to take into account changes in consumer behaviour. We consider the impacts on annual profits for LBOs under the following consumer responses:

- Consumers increase their play time by a fixed percentage with each percentage decrease in maximum stake;
- Consumers increase their play time by a fixed percentage with each £1 decrease in stake;
- Roulette players continue to play B2 games, increasing their play time by a fixed percentage with each percentage decrease in maximum stake, while other B2 players switch to spending the same amount of money on B3 games; and
- B2 games become obsolete. Roulette players cease to play FOBTs, while other B2 players switch to spending the same amount of time on B3 games. Given the imperfection of the £50 soft cap as a case study, it is difficult to say which of these consumer responses is most likely.

We also consider a range of OTC diversion scenarios, to forecast what might happen to revenue lost from machines:

- Our most conservative approach assumes that all lost FOBT stakes are lost from LBOs. This is derived from an assumption that OTC losses in the 2000s and 2010s was as a result of digital betting;
- Our least conservative approach assumes that 47 per cent of lost FOBT stakes are instead placed on OTC bets. This is derived from an assumption that OTC losses in the 2000s and 2010s were as a result of FOBTs, and that FOBT players will divert back to OTC at the same rate; and
- We also take a midpoint of the previous two approaches, assuming 24 per cent substitution to OTC betting.

Depending on the consumer response in terms of FOBT play and OTC play, we forecast a wide range of potential impacts to the LBO sector. If consumers do not change their behaviour much in response to the new regulations (ie. they do not switch to B3 machines or increase their session time much, and do not spend more money on OTC bets), then our model forecasts that 41 per cent of shops will close, and the sector will lose 61 per cent of its profits. On the other hand, if consumers adapt to the new regulations and are receptive to increased OTC betting, our model forecasts that no shops will close and that the sector will lose as little as 20 per cent of its profits. On average across all 12 scenarios, we forecast that 17 per cent of shops will close and the industry will lose 42 per cent of its profits, as a result of a £2 maximum stake.

Appendix A. Detailed LBO Assumptions

In this Appendix, we give more detail into the assumptions we have used in calibrating our model. In particular, we compare our current approach with the report used in our 2016 report, explain why we have changed the approach (if applicable) and whether we consider our current approach to be conservative (ie. leading to more LBO closures) or generous (leading to fewer LBO closures).

A.1. Distributional Assumptions

Our model requires assumptions on the distribution of LBOs by size, turnover level and geographic distribution. The former two impact LBOs' revenues and costs, while geographic distribution affects how much revenue is diverted if an LBO closes. We are not aware of any major updates to this information since our 2016 report, so we mainly rely on the assumptions we used then.

Our 2014 report used floor-plan data from the Valuation Office Agency (VOA) to generalise LBOs into three physical sizes: 30 per cent of LBOs are small (40 square metres); 40 per cent are medium (80 square metres); and 30 per cent are large (120 square metres). Larger LBOs have higher revenues (as they have more FOBTs and can accommodate more OTC betting), but also have higher costs (such as rent and labour).

In order for a small LBO to remain open, we assume that it requires annual profits of £5,000, before corporate taxes. A medium LBO requires £7,500 and a large LBO requires £10,000. These are the same illustrative assumptions from our previous report.

We also assume four levels of turnover of LBOs to reflect variation in LBO profitability: low, medium-low, average and high. In our 2014 report, we referred to the ABB's submission which claimed that 2,685 LBOs out of 9,031 (or 30 per cent) were already "at risk". We split these "at risk" LBOs evenly between the low and medium-low turnover levels, and split the remaining 70 per cent evenly between the average and high turnover categories. We have not updated this assumption.

In our 2016 report, we assumed turnover scaling factors of 72.7 per cent; 80 per cent; 100 per cent; and 120 per cent for each of the LBO types..

We assume that the turnover and size categories are distributed independently, so, for example, 30 per cent of high-turnover LBOs are small, while 35 per cent of large LBOs have average turnover. Note that the turnover multipliers are relative the LBO's size, so a high turnover LBO has higher revenues if it is large than it would if it were small.

A 2013 FOI response from the Gambling Commission provided us with a list of LBOs by postcode. From this, we determined that 77 per cent of LBOs were located in the same postcode district (eg. SE5 8) as another LBO. From this, we derive our assumption that, in the event of an LBO's closure, 75 per cent of its revenues are diverted to other LBOs. As a simplification, we assume that they are diverted uniformly across all remaining LBOs.

A.2. Revenues

LBOs' revenue comes from two sources: FOBTs and OTC betting. This section outlines our assumptions for each of these categories.

A.2.1. FOBT revenue

The Gambling Commission gives data on B2, B3 and C total gross margin (ie. the yield for the LBO) and on the number of machines in LBOs. The overwhelming majority of machines are B2, as the Gambling Commission categorises machines by the highest game available on that machine. In other words, all B3 gambling yields on machines that offer also B2 games fall into the B2 gross margin category. For simplicity, we aggregate these machines as one general type of FOBT, and calculate an annual gross margin per FOBT.

The Gambling Commission's data suggests that about 17 per cent of FOBT gross margin comes from B3/C category games (primarily played on B2 machines). We therefore split the gross margin per FOBT into a B2 component and a B3/C component based on this proportion.

Gambling regulations limit LBOs to four FOBTs each. There are nearly four times as many FOBTs as there are LBOs, meaning that most shops have hit that maximum. We assume that the number of FOBTs varies by shop size, with small shops having 3.7, medium shops having 3.9 and large shops having 4. We also scale this revenue by the turnover multipliers specified in Section 5.1.

A.2.2. OTC revenue

The Gambling Commission provides data on total OTC betting, from which we calculate a gross OTC margin of £164,011 per shop. We assume this varies by size and turnover range, proportionally, so a small (average turnover) LBO has half the OTC margin of a medium sized LBO and a third that of a large LBO, in keeping with the size assumptions of 40, 80 and 120 square metres. According to Gambling Commission data, about 52 per cent of OTC total stakes are on horses, with an average pay-out of 87 per cent. The remaining bets are split between football, dogs, numbers and other, with an average pay-out of 81 per cent overall.

In the event of a reduction in B2 revenue, we assume that some will be diverted to OTC betting. This was a point of contention between the 2013 ABB report and our 2014 report. The ABB assumed that any substitution to OTC betting would be negated by consumers who ceased to visit LBOs. We countered that, as OTC betting involves substantial specialist knowledge and down-time between placing bets and the event in question (whereas the opposite is true for FOBTs), OTC betting is more likely to bring in traffic that then also use FOBTs. On the contrary, gamblers who go to LBOs to use FOBTs probably do not place OTC bets as they do not have the necessary specialist knowledge.[41]

Sector-wide gambling data showed that OTC gross margins were decreasing gradually during the 1990s, and then decreased much more sharply starting in 2002 when FOBTs began to be

[41] NERA (2014), pages 16-17.

introduced into LBOs. Using data from Ladbrokes' annual reports and assuming that the trend of the 1990s would have continued in the absence of FOBTs, we calculate the 46.2 per cent of FOBT gross margins would divert to OTC if FOBTs were eliminated. We use this as an upper bound for the amount of lost B2 revenue that could be diverted to OTC betting.

However, this period has also coincided with a digital revolution, both with respect to the internet and with respect to smart phones. Online betting typically covers the same events (horse racing, football, etc) as OTC betting, so it is difficult to say that LBO-based betting has suffered exclusively as a result of FOBTs.

Using Ladbrokes' data on its digital betting as a proxy for sector-wide online betting, we find that if the rise in digital betting came exclusively at the expense of LBO OTC betting, no lost B2 revenues would be expected to divert to OTC betting. We use this as a lower bound for the amount of lost B2 revenue that could be diverted to OTC betting.

It is unlikely, however, that digital betting came exclusively at the expense of OTC betting without reaching any new consumers, as the clientele are different. Digital bettors are more likely to be young and tech-savvy, while OTC bettors may be older and prefer the traditional in-person nature of placing bets in a bookmaker's office. Therefore we also assume a middle level of OTC diversion, which is an unweighted average of the upper- and lower-bound assumptions, or 23.6 per cent.

A.2.3. Revenue not modelled

There may be other sources of revenue tied to LBOs that we do not explicitly consider. For example, we are aware that digital betting services can be accessed from FOBTs in LBOs belonging to that bookmaker, but that those revenues would appear simply on the bookmaker's profit and loss sheet, rather than on that LBO's profit and loss sheet. Bookmakers may therefore wish to keep physical locations open even when the profit and loss sheets of particular locations do not justify staying open. We do not factor this into our model, but we note that excluding it is a conservative choice.

A.3. Costs

Our cost assumptions comprise a range of different cost items, including taxes, rent, business rates, staff costs and overhead expenses. Some cost items are based on publicly available data; others we have had to estimate using our previous report or other assumptions. We give these assumptions in Table A.1.

Table A.1
Detailed Cost Assumptions

Cost item assumptions						
	Cost Item	**Previous Assumption**	**New Assumption**	**Reason for change?**	**Conservative or Generous?**	**Source**
1	General Betting Duty	15%, according to .gov source.	Same	N/A	Accurate	https://www.gov.uk/guidance/general-betting-duty-pool-betting-duty-and-remote-gaming-duty
2	Machine games duty	25%, according to gov source	20%	20% rate applies if max stake is below £5	Accurate	https //www gov.uk/guidance/machine-games-duty
3	Horse racing levy	10.75%, with a flat rebate as well, ignoring that the first 30 LBOs in a chain receive a larger rebate.	10.75%. The rebate only applies to LBOs below a £3,946 in profits on Horse Racing, which does not apply to any of our modelled LBOs	Levy is negotiated annually, so we use the 16/17 rates	Reasonable	http://www.hblb org.uk/page/115
4a	Staff costs - hours & staff numbers	Ladbroke's says LBOs are open for 12 hours per day. Staff numbers based on a NERA assumption	Same	N/A	Reasonable	
4b	Staff costs - cashiers	Based on a submission to the 2013 triennnial review which said that half of staff are paid under £7/hr, we set a cashier wage of £6.50, relative to a National Minimum Wage of £6.31.	NMW is now £7.50, so we assume cashiers are paid £7.7/hr on average.	Unreasonable to expect that cashiers receive the NMW on average, when none can receive below that. £7.7/hr is an arbitrary assumption, but in the absence of another, seems reasonable. National careers service (undated) says cashiers can earn £11k-£13k/year, but working the NMW w 5 weeks holiday and normal bank holidays gives an annual salary of £11,856, so £11,000 is unlikely.	Reasonable	
4c	Staff costs - managers	National careers service says LBO managers can make £17,000-£25,000/year, whilst cashiers can earn £11,000-£13,000. Using central estimates, this suggests that managers earn 1.75 times what cashiers earn, so we assumed £11.725/hr.	Same approach, but with updated wages for cashiers. We now assume managers earn £13.475/hr	Rising minimum wages means wages will rise.	Reasonable	https //nationalcareersservice.direct.gov.uk/advice/planning/jobprofiles/Pages/bettingshopcashier.aspx
5	Rent	We take total lease expenses from WH's and Ladbrokes's annual reports, and divide by the number of shops. We then scale up or down for large and small shops.	Same, but with updated data	N/A	Reasonable	William Hill and Ladbroke's 2016 annual reports
6	Rates	VOA data says that 16% of LBOs are category A. For Small LBOs, we assume the rateable value is a (16/30):(14/30) weighted average between the midpoint value of Category A and Category B. All medium LBOs have a rateable value equal to the midpoint of Category B. 8% of LBOs are Category C, so we assign a (22/30):(8/30) weighted average between the midpoints of Category B and Category C.	Same	N/A	Reasonable	http //www.2010.voa.gov.uk/rli/static/HelpPages/English/faqs/faq146-what_are_the_current_multipliers.html

Cost item assumptions						
	Cost Item	**Previous Assumption**	**New Assumption**	**Reason for change?**	**Conservative or Generous?**	**Source**
7	Premises licences	Uses same assumption on rating bands, and calculates a licence rate for small/med/large shops using standard rates	Licencing rates have not changed	N/A	Accurate	Websites of local authorities, e g. http://eastdevon.gov.uk/licensing/alcohol-and-entertainment/premises-licences-and-club-premises-certificates/guidance-documents/a-guide-to-licensing-act-fees/
8	Gambling Commission Licence	GC publishes rates by category (based on number of shops). 2013 FOI gave us the number of companies in each catogry, so we calculated the total amount paid and divided it evenly amongst shops.	Rates now based on company size rather than LBO size. We have calculated using the new methodology.	New rules on calculating rates.	Accurate	http //www gamblingcommission gov uk/Gambling-sectors/Betting/Getting-a-licence/Applying-for-a-licence/How-do-I-apply-OL/Annual-fees.aspx
9	SIS and Turf TV (A/V providers)	News article gives SIS rates, Turf gives their rates online.	Same	No updated information available	Conservative	http://www.racingpost.com/news/horse-racing/racecourse-media-group-sis-turftv-shock-rights-deal-boost-for-racecourses-and-bookmakers/1959466/#newsArchiveTabs=last7DaysNews
10	Elec/Water	Standard rates from BG and Anglian Water, multiplied by data on Ladbrokes' total usage and divided by the number of Ladbrokes shops.	Same approach, but using updated rates.	N/A	Accurate	British Gas standard rates for W1C 1BE http //www britishgas co.uk/products-and-services/gas-and-electricity/our-energy-tariffs/standard/standard-rates.html; Anglian Water rates for businesses http://www.anglianwater.co uk/business/your-account/tariffs/streamline-green aspx
11	Overheads (Papers, Football Licence, Tote Machine, EPOS Support, Phone & Internet)	Based on a 2011 forum post by someone in the bookmaking industry.	Same, but adjusted for inflation	Small component, little data.	Mildly generous - some cost items may be missing, and we don t account for inflation.	http://community.betfair.com/general_betting/go/thread/view/94082/27810065/opening-a-betting-shop?post_id=499364565#499364565#flWelcomeHeader
12	Overheads (Advertising, Security/microfilm)	1994 NERA report, adjusted for inflation.	Same	N/A	Reasonable	
13	Depreciation and Amortisation	Ladbrokes's UK D&A, divided by its number of shops. Scaled by shop size.	Same, but with updated data	N/A	Reasonable	

Report qualifications/assumptions and limiting conditions

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