ECON30580 Economics of Betting Markets
2. The Past and Present of Betting Markets

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Part I

Betting Before the Internet

A Very Old Activity

- Sports betting today is a technologically advanced sector.
- People place bets with the touch of a finger on a mobile phone. Bookmakers used cutting-edge statistical methods to adjust odds and target customers.
- But betting on sports is an ancient pastime. See the short paper by Victor Matheson.
- Organized sports has a long history. The ancient Olympic Games date back to 776 BC. The Circus Maximum in Rome, the home of horse and chariot racing events as well as gladiatorial contests for over one thousand years, was originally constructed around 500 BC, and the Colosseum in Rome began hosting sporting events including gladiator fights in 80 AD.
- Gambling was a popular activity at the ancient Olympics in Greece and at the racing and fighting contests in ancient Rome.
- Matheson: "*Problems associated with gambling were also widely reported. As early as 388 BCE, the boxer Eupolus of Thessaly was known to have paid opponents to throw fights in the Olympics. Rampant gambling in Rome led Caesar Augustus (c. BCE 20) to limit the activity to only a week-long festival called "Saturnalia" celebrated around the time of the winter solstice.*"

Bookmakers and the Sport of Kings

- For most of history, betting on horse racing was the predominant type of sports gambling across Europe and North America. (The formation of professional sports leagues in the mid- to late 19th century saw some diversification into betting on other sports.)
- Chester race course was founded in 1539. The first racetrack in North America was established on Long Island in 1665.
- Newmarket was frequented by King Charles II, earning horse racing the title of "the Sport of Kings."
- Prior to the late 1700s, bettors just placed bets among themselves.
- In the late 1700s, bookmakers began to quote odds on individual races but the bookmakers of this era had a bad reputation.
- Sometimes, bookmakers did not have the funds to payout on all winning bets and would abscond without honouring their bets.
- By the late 19th century, betting with bookmakers became increasingly frowned upon.

Joseph Oller

Joseph Oller and Parimutuel Betting

- Joseph Oller (1839-1922) was a Spanish businessman most famous for co-founding the legendary Moulin Rouge cabaret club in Paris with Charles Zidler in 1889.
- In Paris in the 1860s, Oller came up with a new way to bet on horses: Pari-mutuel betting.
  - The operator takes in money in bets on various horses and keeps an advertised fraction of the take for themselves.
  - The rest is paid out to the bettors that have picked the winner, in proportion to the size of their original bet.
- Pari-mutuel betting avoided the risk of placing bets with bookmakers. You knew the money was there to pay you if you picked the winner.
- Oller developed a machine to illustrate to bettors how much money had been placed on various horses—later versions of these machines were called "the totaliser" and betting of this form became known in the UK as the "tote".
- Oller was arrested and fined in 1874 for operating an illegal gambling business but, after lots of bookmaking scandals, France outlawed bookmakers in 1887, and made pari-mutuels the only legal way to bet.

How Pari-Mutuel Betting Works

- Suppose there is a horse race with multiple contestants.
- Suppose that \$1000 has been placed in bets and the pari-mutuel operator's "'take" is 10%. This means there is \$900 available to pay out to those who picked the winner.
- The terms of the winning payments—the odds—are determined by how much money has been placed on the winning horse.
  - If a total of \$450 was placed on the winner, those who backed the winner will be paid back \$2 for every \$1 they have bet.
  - If a total of \$600 was placed on the winner, those who backed the winner will be paid back \$1.5 for every \$1 they have bet.
- The odds are inversely proportional to the betting volumes: As the fraction of money placed on the winning horse gets higher, the size of the winning payout on a \$1 bet gets lower.
- Note that unless you are placing the very final bet, you can't be sure what the odds are for your pari-mutuel bet.
- You could back an outsider expecting a big payout if it wins but then someone places a huge amount of money on that horse at the last minute and your winning odds are dramatically cut.

Restrictions on Gambling in the US

- The late 19th century saw the rise of the "progressive movement" which had a conservative view of social activities such as drinking alcohol and gambling.
- The movement eventually achieved a prohibition of alcohol in the US from 1920 to 1933 (which of course just drove it underground).
- State governments began to crack down on horse racing. In 1897, there were 314 racetracks operating in the US. By 1908, there were 43.
- By 1900 betting on horse races was made illegal except in Kentucky and Maryland.
- Attitudes to gambling were further affected by a series of scandals, most famously when gangsters bribed the Chicago White Sox to lose the 1919 World Series.
- US sports became vigilant about keeping gambling away from game.
- Of course, people could still bet but the business was run by underground criminal organisations.
- In the 1960s, worried about the influence of organised crime, Congress passed laws such as the 1961 Wire Act and the 1964 Sports Bribery Act to discourage betting on sports.

Restrictions on Gambling in the UK

- Similar restrictions were placed on betting on sports in the UK.
- The 1853 Betting Houses Act made off-course betting with bookmakers illegal.
- Attempts to import pari-mutuel betting in 1870s were banned until 1928 when on-track "tote" betting was legalized.
- The 1934 Betting and Lotteries Act restricted horse racing tracks to operating on a maximum of 104 days a year.
- Again, of course, illegal "street betting" still took place.
- The Betting and Gaming Act of 1960 finally legalised off-course betting. Bookmakers could legally take bets on horse racing, though at first the odds had to be the same as the pari-mutuel on-track "tote odds".
- But there were lots of restrictions on their operation. No carpets were allowed; windows had to be blacked out; no advertising was allowed; they could not serve drinks; there were no televisions to watch sport on.
- Still, the business was popular. A year after the Act passed, there were over 13,000 licenses for betting shops in operation in the UK.

UK Betting Before the Internet

- While legal from 1961 onwards, there were still lots of restrictions on betting. A "demand test" required potential licensees to demonstrate that there was an unmet need for gambling that their establishment would fulfil.
- People could bet on a single football match if it was live on TV (very few were). Otherwise, there were was a minimum trebles rule, meaning you had to bet on at least 3 matches in the form of an "accumulator" bet.
- Given the difficulty in betting on football or other sports, horse racing was still the predominant sport for betting. In the early 2000s, horse racing still accounted for over 70% of sports betting.
- And betting was heavily taxed.
- There was a General Betting Duty: You had to pay 7% of the amount you bet in tax, whether you won or lost e.g. to bet £100 on a horse, you had to hand over £107 to the bookmaker.
- From 1986 onwards, bookmaker's shops could show sport on TVs and have more pleasant interiors.

Part II

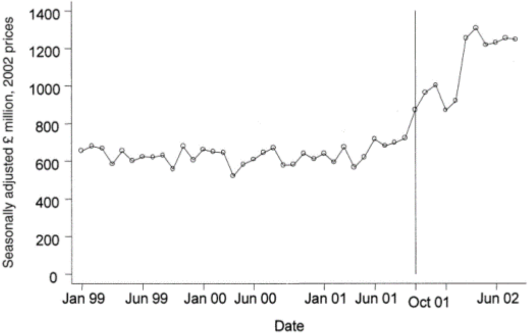
The Internet and Deregulation

The Internet Revolutionises UK Betting And Its Taxation

- By the early 2000s, people began to have access to internet at home.
- Some UK bookmakers began to operate online businesses in other countries, meaning bettors did not have to pay tax and UK legal restrictions on bet options did not apply.
- Faced with losing the tax revenue from betting, the UK scrapped the general betting duty and replaced it with a tax on "gross gambling revenue" (GGR), which is money taken in minus money paid out to betters.
- This tax change roughly halved the amount of tax levied on betting and immediately led to a big increase in the quantity of bets placed (see next page).
- This kind of "Laffer curve" effect is very unusual in public finance. It shows there is something a bit different about the betting sector.
- Restrictions on betting like the treble bet rule for football were also scrapped and the industry began to boom.
- Policy question: the tax on GGR effectively makes the government an "equity partner" with bookmakers. The more bettors lose, the more tax the government raises. Is this the right ethical approach to taxing the sector?

Reduced Betting Tax Increased Betting Activity

Figure 1. Off–Course Betting Revenue



Source: Paton, Siegel and Vaughan Williams (2004). National Tax Journal

Deregulation Around the World

- With pressure from bookmakers threatening to move offshre, the UK Gambling Act of 2005 deregulated betting on sports. It
  - Abolishing the "demand test"
  - Allowed for increased gambling advertising
  - Permitted the introduction of in-shop gambling machines
  - Introduced a "light touch" approach to regulating gambling
- UK online betting has grown to become a multibillion-pound per year business.
- Football has replaced horse racing as the most popular sport to bet on and betting companies combines sports betting with various "always on" online casino games.
- Other countries around the world have followed, often with the big UK bookmakers coming into the market to use their "market-leading" methods of parting people with their money.
- Questions are now being asked about this deregulation strategy with debate being particularly intense in the UK.

Part III

Asymmetric Information and a Split Market

Asymmetric Information in Economics

- Modern economics has paid a lot of attention to the **economics of information**.
- In particular, there has been a lot of research on **asymmetric information:** when one side of a transaction knows more than the other.
- In 2001, George Akerlof, Michael Spence and Joe Stiglitz won the Nobel prize in economics for their work on the various ways in which asymmetric information can affect markets.

Two Famous Cases Where Markets Can Collapse

- **Used cars (Akerlof's "lemons"):**
  - Sellers know the car's quality; buyers often can't tell a gem from a lemon.
  - Buyers respond by offering a price reflecting average quality.
  - High-quality sellers refuse that price and exit $\Rightarrow$ average quality falls further $\Rightarrow$ price falls again.
  - Result: too little trade, and possibly no market for good used cars at all.
- **Health insurance (Stiglitz and others):**
  - People know more about their health, lifestyle, and risk than insurers.
  - If insurance is priced for an "average" customer, it is most attractive to high-risk buyers.
  - More high-risk buyers $\Rightarrow$ premiums rise $\Rightarrow$ low-risk buyers exit $\Rightarrow$ the risk pool deteriorates.
  - This feedback loop can lead to a "death spiral" where coverage becomes extremely expensive or disappears.

Separating Equilibria

- Spence described a different possible outcome.
- A **separating equilibrium** is an outcome where different types choose different actions.
- Those actions then act as a signal, revealing the hidden type.
- The basic mechanism:
  - There are two types (e.g. high vs low ability; informed vs uninformed).
  - One side cannot directly observe type.
  - An action (education, warranty, price sensitivity, track record) is cheaper for one type than the other.
  - Then only the "right" type finds it worthwhile to take the action, so the action credibly signals type.
- In a **pooling equilibrium**, both types do the same thing, so nothing is revealed.
- In a **separating equilibrium**, behaviour differs, so the market learns who is who and prices/terms adjust.

Spence's Education Example: Signalling in the Job Market

- Employers want to hire high-ability workers but cannot observe ability directly.
- **Education becomes a signal:** high-ability workers find it less costly to acquire education.
  - "Less costly" does not just mean fees — it can mean effort, time, stress, and probability of failing.
- In a separating equilibrium:
  - High-ability workers choose high education and get high wages.
  - Low-ability workers choose low education and get low wages.
  - Employers interpret education as a credible signal and set wages accordingly.
- Important twist: education may not be what makes people productive.
  - It can be socially wasteful (a costly screening device) even while it solves the employer's information problem.
  - Clearly, this is not a message an economics professor necessarily endorses!

Betting Markets and Asymmetric Information

- Betting has the same underlying fear: **informed customers** may know more than the bookmaker.
- Even before the internet, bookmakers everywhere knew the legend of **Bill Benter and Alan Woods**.
  - They used computers and statistical models to win tens of millions betting on Hong Kong horse racing.
  - Hong Kong was pari-mutuel, so there were no traditional bookmakers being "fleeced."
  - But the story still mattered: it showed what well-funded modelling could do to a betting market.
- Then the internet arrived:
  - Opportunity: Anyone **in the world** could be a customer. Yay!
  - Threat: **Anyone** in the world could be a customer. Uh-oh!
- A classic asymmetric information problem. But betting markets didn't collapse: Two business models emerged, known as **soft** and **sharp** bookmakers.

Soft Bookmaking Model

- The "soft" bookmaker model is the one practiced by the leading retail European bookmakers such as Paddy Power (now owned by Flutter).
- The key to the model is to discourage winning bettors and encourage those who lose.
- The model sets typical maximum stakes on bets, e.g. about £500 in the UK. Those who develop a record of winning find their maximum stake reduced and can end up with their accounts closed.
- Losers are encouraged to keep betting. For example, if they haven't placed a bet in a while, they will get offers of "free bets" to get them back betting.
- Those who lose a lot of money get special treatment, such as personal "account managers" to manage their relationship with the bookmaker and "VIP treatment" such as gifts of tickets to sporting events.
- There is an appearance of competition on odds among these bookmakers—you can see different odds for each event at oddschecker.com—but the amount you can bet on high advertised odds is usually limited and those who take up too many special offers get banned.

Soft Bookmaking Advertising and Margins on Odds

- The ideal customers for soft bookmaking are those with poor expertise in picking winners and who keep betting because they are deluded or view the excitement as offsetting the fact that, on average, they lose money.
- While there is little competition among these firms in terms of setting odds, there is intense competition for attracting customers via marketing and special deals.
- Their marketing tends to focus on the idea that betting with their firm is more fun or how betting is part of an exciting lifestyle or on promoting "exotic" bets with very high average loss rates for customers.
- These companies tend to spend a lot of money on having fancy websites including live streaming of sporting events.
- These additional costs need to be covered and this occurs via average odds being less generous—these bookmakers have high gross margins (we will discuss this concept and how to calculate it later).

Sharp Bookmakers

- Sharp bookmakers such as Pinnacle emerged as a model for making money from high-volume bettors in the internet age.
- These bookmakers operate low-margin businesses and place no restrictions on the volumes placed by bettors.
- They do not limit or close accounts for even the most successful bettors.
- They rely instead on making profits via having a low profit margin per $1 bet but having a very high level of betting volume.
- It is hard to make this model work if you're paying taxes on profits, so the sharp bookmakers are largely based outside the EU.
- They do not spend money on advertising and there are many countries where they do not have licenses to operate.
- However, they attract large betting volumes from professional gamblers and betting syndicates.
- Even if banned in their country, retail bettors can place bets with sharp bookmakers via brokers who act as intermediaries.

Part IV

The Wild West: Sports Betting in the US

Sports Betting in the US

- Sports betting remained illegal in the US for a lot longer than elsewhere.
- Gambling was legalised in Nevada and in other locations such as Native American tribal lands but was illegal elsewhere.
- This reflected more conservative moral attitudes towards gambling and more concern about betting's impact on the integrity of sporting events.
- This was particularly true for college sports, which generate a lot of revenue but feature players who don't get paid (and thus might be more open to bribing by gamblers.)
- Bans on gambling were at the state level but in 1992, when some states were considering making sports betting legal, a federal act, the **Professional and Amateur Sports Protection Act (PASPA)** was passed. It prohibited more states from sanctioning or sponsoring sports gambling. This act was backed by the US professional sports leagues.
- Illegal gambling continued (one estimate suggests that in 2015 between $148 and $500 billion was placed illegally, compared with $4 billion legally in Nevada) and there was almost no attempt to enforce gambling laws.

PASPA Repeal and the New US Market

- In 2018, the US Supreme Court declared the PASPA law to be unconstitutional. This allowed states the option to legalise sports gambling.
- Having seen the European experience of large online betting revenues that can be taxed, states were keen to allow sports betting.
- And now aware of the revenue possibilities from advertising and sponsorship, the professional sports leagues were also happy for betting to be legalised.
- Over 30 US states have legalised sports betting so far. The state-by-state legalisation process has not been pretty—see the NY Times article "Cigars, Booze, Money: How a Lobbying Blitz Made Sports Betting Ubiquitous."
- The two biggest businesses in this new market—*DraftKings* and *FanDuel* have over 60% market share—were previously fantasy sports sites, which were in a "grey area" legally but had email lists of clients who wanted to bet on sports.
- European bookmakers have played a big role. Flutter (i.e. Paddy Power) bought FanDuel and others are selling their software and business techniques to US "sportsbooks" as they are known.

Requiem for a Sports Bettor

- These firms have brought their full range of restrictive practices to the US, operating very differently from Las Vegas bookmakers.
- A fascinating 2019 article *Requiem for a Sports Bettor* by David Hill describes how PASPA's repeal very quickly changed the landscape of US betting.
- Hill details how the new entrants have changed things via interviews with long-time sports bettors such as Gadoon Kyrollos (known in betting circles as "Spanky") and "Captain Jack".
- From the article: *"It just seems so un-American for a company to say, 'Come on, take your shot at us, we're here for the gamble,' and then when you do they say, 'No, you're too smart, we only want to take the action of people who don't know what they're doing' says Captain Jack. "It's predatory. They're being encouraged to walk into a buzz saw."*
- *"William Hill throws people out quicker than a 100 mph fastball over home plate," says Bill Krackomberger. "The European way of cutting people off is really dumb. If someone is good enough to beat you why not use that information internally? Take the bet at a smaller amount and use it to move your line."*

Supplementary Material in the Draft Book

- Chapter 1: Sports Betting Before the Internet
- Chapter 2: The Internet Changes Everything