How Data Statistics Affects Sports Betting

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Sports betting has been around for a long time. Sports betting basically, grew up with the expansion of technology. While all of this was happening, sports betting was illegal. This did not stop many people. Sports bets were mostly made through bookmakers and personal commissioners. Bookmakers, or “bookies” set and determine odds, while collecting and paying out money for bets. Bookies were the place to go if you wanted to bet. Bookmakers, usually, had some sort of ties with the mafia. Even though bookies are still used today, they are going away quickly due to the vast legalization of sports gambling across the United States.

Nevada legalized sports betting in 1949. That means if someone wanted to bet on sports, legally, they would have to go to Las Vegas. That was frustrating for American’s because most people in the United States do not live near Las Vegas. At that time, sports betting was looked at as something only criminals participated in.

Today, 15 states currently have some sort of legalized sports gambling underway. Those states include Oregon, Nevada, Montana, New Mexico, Iowa, Arkansas, Mississippi, Indiana, Michigan, West Virginia, Pennsylvania, New York, New Jersey, Delaware, and Rhode Island. There are 6 states where sports betting legalization has passed. Those states include Colorado, Illinois, Tennessee, North Carolina, Connecticut, and New Hampshire. As shown, legalized sports gambling is growing rapidly. It is even growing faster than the legalization of marijuana.

According to Legal Sports Report, “The seven states that report revenue posted a combined $9.99 billion in handle from June 2018 through July 2019.” That number is the amount that was wagered at that time. This was when there were only seven legal sports betting states. Legal Sports Report also stated that the combined profit of those seven states from that $9.99 billion was $625 million over the same time period. This is even after the payouts to gamblers who have one their bets. The same article said West Virginia made $12.63 in total revenue in that same June 2018 – July 2019 window. $10.88 million went to the operators, $0.34 million went to the federal government, and $1.42 went back into the state of West Virginia. That money then is taxed by the state, goes back to the casino operations, and many other people involved in the entire process. This is good for the state of West Virginia because we do not have too many taxes compared to other states. The tax that the state takes from sports betting revenue can be used for productive things like schools, parks, and other public facilities.

The reason for this research topic is to show the effects of statistics in legal sports betting. Sports betting is very new, and it is only going to grow. Today, we live in a time that constantly relies on data statistics. A few examples are businesses and their finance or sales numbers, sports (in general), by using the shift in baseball or using the lefty-lefty matchup, or predicting weather patterns or outcomes. All of these things use data statistics, a ton. So why not use it to our advantage in sports betting? I want to do this project because I enjoy sports and I enjoying sports betting. The reason I am so fascinated in sports betting is because everyone wins. Not in terms of an individual bet, but throughout the course of a certain amount of time. What I mean by this is that bettors can exercise their freedom to try and win some money, and sports betting companies or casinos will eventually generate profit over time. If the public wants to bet on sports, why wouldn’t you let them? Some participants will win and some participants will lose, but in the end the sports betting companies will profit. It works the same way as gambling on black jack. Yeah, you might win some money from time to time, but the house always wins, overall. I believe the effects of data statistics in sports betting will show how beneficial statistics can be for sports betting and everyone, overall.

For the design portion of this project, I want to create a web application. I want to design a web application where an individual can see information about a particular bet. This can be a very broad search, or a very particular search. So, as an example, let’s say you want to bet on an MLB game, which is played on a Sunday afternoon in Denver, Colorado. Let’s say you want to bet the Rockies, who are favored in this game against the Diamondbacks. You could navigate and find that when the Rockies are favored during home games on Sunday afternoon, that they win 77% of the time. It is a way to look at statistics, in sports, to help you decide on your bet of choice.

I believe this tool will really help! The reason I say this is because all the statistics will be in one web application. It can get overwhelming betting on a different number of sports at once. You can use charts and search for statistics, individually. That also takes up a ton of time, but searching on the internet every little statistic. Not to mention there are so many statistics in every sport. This will help a ton because it will save bettors a lot of time, and time is the most valuable thing in this world. For this project, I have to limit my data because I will not have enough time to input an absurd amount of data. I just want to prove my point on what this could be in the future. In the future, this could be a service that can be sold to or compete with sports betting companies like DraftKings and Fan duel. You can sell the statistic system to those companies for them to use on the same website. You could use the application, and make your own service, where someone who uses it has to pay to see the statistics. That could be a good opportunity if it caught on. You could also create your own sports betting service, and use this data statistic tool in the same website. It would eventually be beneficial to be able to bet, as well as seeing the statistics for your bet all in one single website.

Sports betting is an entire world in itself. There are so many different types of sports bets today. The most important factor in sports betting is the value of the bet. Each bet will show the value, which means how much the bettor will win for that particular bet. Most sports betting bookmakers or casinos determine value by increments of 100 dollars. If a bets value has a minus then that means that’s the number the bettor has to bet in order to win 100 dollars. So, if the value states “-110” the bettor has to bet 110 dollars to win 100 dollars. Now, if the number has a plus sign, then that is the number the bettor would win if they bet 100 dollars. For example, if the value states “+110” the bettor has to bet 100 dollars to win 110 dollars. The most common types of sports bets are with or against the points, over or under for the total, and money line bets. To explain these, let’s use an NFL football. game as an example.

So, let’s say the Texans are playing at the Packers on a Thursday night. We will say that the Packers are 3.5-point favorites. That means that the Packers should win this game by 3 or 4 points. The half of point is used so there are no tie breakers between the bettor and the bookmaker, or casino. This means you either win or lose the bet. The bettor can either bet the Packers (which are -3.5) or you can bet the Texans (which are +3.5). If a bettor decides to bet the Packers -3.5, this means the Packers have to win the game by at least 4 points to win the bet. If a bettor decides to bet the Texans +3.5 the Texans can either win the game outright, or lose the game by 3 points to win. If the Texans lose the game by 4 points, the bettor loses.

The next common sports bet is the over, or under of the total amount of points/runs. This is just betting on the over, or under of the total amount of points. As an example, let’s say the over/under for the Texans and Packers game is 52.5 points. The bettor can bet the over 52.5 total points, or under 52.5 points.

The third common sports bet is the money line bet. The money line bet is simply who the bettor thinks will win the game, outright, without any points involved. This is one of the simplest bets that anyone can understand. Bettors also have to be careful when betting on money lines. The reason why is because if the team is favored (like the Packers in our example) then you will not get much value when betting the Packers, because they should win the game. On the other hand, if you bet the Texans money line, the bettor will get more value because the Texans should not win the game, according to the bookmakers.

There are also many other types of bets in the sports betting industry. There are proposition bets, which are bets that have nothing to do with the outcome of the game or match. An example of this type of bet would be individual player bets. So, a normal proposition bet would be if Aaron Rodgers (quarterback of the Packers) will throw over/under 200 total passing yards. Recently, for the super bowl, bettors could bet on the over/under for the amount of time it takes to sing the national anthem, or what color Gatorade would be dumped on the winning coach. There are so many proposition bets in the industry, but they can be very difficult because they are so particular, and random.

Now, the question is how do bookmakers and casinos determine the odds and value for these bets? First of all, there are no perfect bookmakers, or oddsmakers. It is just flat out impossible to be perfect! Quoted from Gambling Sites.com “So once they’ve crunched the numbers and predicted the probability of each outcome happening, they adjust the odds to bring in action on both sides. The odds that are set then carry a certain implied probability, which is the number we base our wagers on.”5 Some bookmakers even use their best guess by using data statistics and other outside factors to come up with their odds. Odds making is all about the probability for the outcome of a game. Bookmakers almost always determine the odds for games to swing in their favors. For an example, a bookmaker might set a baseball game to less runs to guarantee bettors will bet the other way, so in the end the bookmaker can make more profit.

According to a retired oddsmaker, “Odds compiling has steadily become more and more about databases, statistics and mathematical models and less about personal experience, intuition and feel.” 1 This means that determining odds is mostly based on statistical data. So, that is proof that there is no such thing as a perfect oddsmaker. Some oddsmakers have the ability to have a “feel” for certain games. What I mean by that is have a gut feeling about what to set the odds to for a game. Those oddsmakers can make real profit of having a good feel about a particular game or match. Determining odds first started out as a counting system. Oddsmakers would count how many times the home team win or the away team losses. Trenhaile stated “Most sports betting models are easily found online and have been around for a while but with many tweaks and refinements over the years and ever improving levels of data.” 1 There are different types of sports betting models, and data statistic generators that is available for the public to use. Oddsmakers take time out of their day to generate those statistics into profitable odds.

Another key strategy used by oddsmakers is to make an even split on both sides of the bet. Sportsbettingdime states, “Odds are engineered to attract equal action on both sides of a betting line. In a perfect world, a sportsbook receives equal betting volume on both sides of a wager then, win or lose, they’ll make 5-10% on the line.”2. You can think of oddsmakers as risk management professionals, and as expert sports predictors. Sportsbettingdime says “Mathematicians and statisticians play a significant role in odds making today. As oddsmaker Todd Furham describes, the formation of odds “[isn’t just] Xs and Os, it’s data, numbers, and an understanding of the market.”2. This means that so many small details go into the determination of odds, today.

Since I am designing an application about sports betting statistics, I need to get large amounts of data for every type of bet. I will receive my data statistics from credible sources like ESPN, CBS Sports, FiveThirtyEight, and others. I like these three sources, particularly, because they use percentages as their data. For example, on FiveThirtyEight, you will see percentages for an NBA game about who has the better chance to win the game, how many points they should win by, and the point spreads for that game. I am also going to be using a professional sports betting analyst named Ralph Michaels. He uses spreadsheets and data sets to determine percentages of bets. Michaels sells his analysis to associates, as well as showing his data on a show called WagerTalk.

So, the issue that I am addressing for the web application is the ignorance of new bettors. This tool can also benefit experienced bettors, as well. The issue is that if a bettor wants to see data statistics for a bet, they have to do their own research, or dig up information from all over the web. This web application will hold an abundance of sports betting data all in one place.

Now, so how does data statistics affect sports betting? There are so many ways that data statistics are incorporated into sports betting. Data analytics can help predict outcomes through probability.  Stated from Rui She “In fact, by facilitating the small probability elements, some information measures focusing on rare events are proposed to settle the big data problems such as anomaly detection, feature selection and pattern recognition.”4. Probability and data statistics work closely together to predict outcomes.

It is sought in the sports gambling world, that whoever has the most information (data) usually comes out wins the most. This is not always necessarily true because bettors could have irrelevant data. According to Innovation Enterprise, “Big data has already made a huge impact in businesses of all types, from financial services to healthcare institutions to retail stores. That it would make some changes to the world of gambling is no shocking development. In fact, understanding how those changes are occurring can also help people get a clear picture of where the gambling industry will likely be in the near future.”6

Data analytics first, affects the sportsbooks or bookmakers. The reason why I decided to talk about this one first is because this is who data analytics impacts first. It affects bookmakers because they are the ones who set the odds for sports bets. This means that data affects their outcome of winning or losing bets, which ultimately refers to how much money they are making. Bookmakers have to keep on top of their data to make sure that is it always consistent. If you go down the rabbit hole, bookmakers are very important because they will determine how much money they, or a casino will make from their sportsbook. At casinos, the sportsbook is a large source of income, and many now rely on the sportsbook to bring in a certain amount of profit every year. According to The Ringer “estimates that a Las Vegas sportsbook’s revenue is roughly 4.6 percent of the total money wagered. After federal and state taxes, Kornegay estimates Vegas sportsbooks bring in 3.3 percent of the total money wagered, much of which is then used to cover operating expenses.”8 In March of 2018, West Virginia legalized sports gambling across the state. In the first 13 months, West Virginia made $12.63M in revenue from legalized sports betting.

Data statistics, equally, impacts the bettor. The reason why is because in sports betting, it is the bookmaker vs. the bettor. So, on the other side of the spectrum, the bettor can use data statistics to impact their bets, as well. Stated from Innovation Enterprise, “Big data services quickly appeared that were designed to empower gamblers, giving them more information and helping them strategize more effectively.”6 If bettors have a reliable source of data, that is constantly updated, then they can really benefit from their bets. Reliable data actually engages more benefits. The reason why is because bettors feel more comfortable betting, and feel like they have a greater opportunity to win, while using reliable data. This can do the opposite towards casinos because they could possibly lose money over the course of time. Since data statistics help, both the bettor and the bookmaker, can benefit from data statistics, they both balance each other out, overall.

Both, gamblers and bookmakers have to keep up with the growth of data statistics in sports betting. Bookmakers are using data statistics, constantly, so that means bettors have to use it as well, to keep up with the probability of particular bets. Data statistics impacts many other businesses involved in sports gambling. Stated by Panos Louridas, “As the volumes and types of data have increased, software engineers are called more and more often to perform different statistical analyses with them. Software engineers are active in gathering and analyzing data on an unprecedented scale to make it useful and grow new business models.”7 Data statistics are still relatively new to the gambling industry, and the full potential has not yet peaked.

There are a couple of negatives when it comes to data statistics in sports betting. The first negative impact of data statistics in sports betting is that it is just simply a ton of work. Bettors have to research all of these individual data statistics to learn more about their bets. I have personally, seen bettors at the casino with notebooks filled with a ton of information. It seems like these bettors dedicate a lot of time and effort to searching for data statistics. That is the reason why I wanted to create this web application, so bettors can have data statistics all in one web application and it can save them a ton of time. I plan on helping these bettors by limiting time, while feeling comfortable to place a number of bets.

Another negative of data statistics in sports betting is a bettor can overthink certain bets. Some bettors will see data statistics and overthink every single detail that goes into a bed. This can ruin a bettor because it is like overthinking a question on a test. Viewing data statistics all depends on how the bettor interprets them. There are many different ways to interpret data statistics.

The third negative of data statistics in sports betting is that bettors can tie independent variables into one another. What I mean by this is that different situations can influence other situations. An example of this is if you bet on the home team on a Monday night because data statistics said that the home team (for NFL), on Monday nights, wins 67% of the time. Then, the home team won, as the data statistics referred to should. Then, you bet the home team for the next two weeks without really putting into much detail about who is playing the game. The bettor than losses the next two weeks because of just simply what the data statistics suggested.

Data statistics are not always efficient. Bettors should not always rely on data statistics for placing their bets. Bettors should realize that data statistics cannot predict the outcome of a game or match. The web application that I am creating is just going to be a tool for bettors. The application will not be responsible for bettors winning or losing certain bets.

This is not my “real” references page. I am just posting the links and using numbers so I can easily track where these quotations are in the paper. Once the paper is finished, I will make a professional references page.

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