**Our model:**

Y' = 0.1745 final four appearances - 0.0360 rebounds per game - 0.0143 coach tourney appearances + 0.1234 adj offensive-def efficiency

**Effect sizes:**

The effect sizes are calculated by seeing how a change in one variable would affect the final outcome given that the others are held constant. The coefficients

|  |  |  |  |
| --- | --- | --- | --- |
| Predictor | Coefficient | Change Logistic Regression Model Given Increase of One Unit | Change in Win Probability Given Increase of One Unit |
| Couch Final Four Appearances | .1745 | e^.1745 = 1.1907 | 19.07% |
| Rebounds per Game | -.0143 | e^-.0143 = .9858 | 1.42% |
| Coach Tournament Appearances | -.0360 | e^-.0360 = .9646 | 3.54% |
| Ajj Off-Def Efficiency | .1234 | e^.1234 = 1.1313 | 13.13% |

**Final four appearances & Coach Tournament Appearances**

If a coach has one more year of final four experience, then the odds of his team winning are increased by 19.07%. More than simply tournament appearances, final four appearances is a representation of a coach’s and team’s flexibility and ability to adjust to various styles of play. Every schools that makes it to the tournament is without a doubt a good team, however with any sport, different programs have different styles of playing both offense and defense. For a coach to repeatedly make it to the final four is a sign of that coach to create solutions to adjust to the various playing styles that his team will have to encounter and defeat in order to move on to the next round. This is the real dividing line between championship teams and tournament participants.

**Rebounds**

For every rebound a team gets this decreases their odds of winning the game by 1.42%. The negative correlation between rebounds and winning may have to do with the fact that rebounding is indicative of a team’s presence close to the basket. If a team highly stresses rebounding, they are more susceptible to a high paced transition offense. In the NCAA especially, where teams are known for harnessing the youth of players to run high press and fast breaks, any lack of balance between out-rebounding and solidifying the backcourt, can make the difference between winning and losing.

* Based on our model, we saw Duke with the highest chance of winning the whole competition. We knew our model’s laughable favoring of Duke -- due to Duke coach Mike Krzyzewski’s numerous NCAA competition and final four appearances -- was either going to make or break us. Though Duke only reached the elite eight, they went farther than some thought they would and this turned out to be a slightly prescient prediction but also slightly stupid.
* We also gave UNC an overwhelming win percentage over any of the other teams in the final four, so them losing in the national championship cost us a lot; $3,000 to be exact. UNC was the only one of our predicted teams to actually make the final four, so it would make sense that we had them winning it all after Duke dropped out. However, we did have Villanova with the 7th highest chance at winning it all, so we still saw them as pretty likely to win.
* We also had UVA beating Syracuse at about 80%. Since the Elite 8 had ¾ games as upsets, this hurt us tremendously and took us out of 2nd place.

It appears that we were the number one loser. That’s right, sixth place. Kris Jenkins buzzer beater shattered our hearts and our hopes at winning big. Anyways, here are the details about how we did so well (or not so well).

Firstly, the Michigan St upset in the first round helped us, not because we favored MTSU but because we liked Michigan St less than other models. That game was the initial boost that set us apart from the competition in this class. Another upset that helped us even though we heavily favored the losing team was the West Virginia vs. SF Austin game.

A few games that really hurt us were Virginia losing to Syracuse and Duke losing to Oregon. Virginia has such a high Adj Off/Deff rating because they play a very slow defensive game and take safe shots. It is a recipe for success but there is one flaw. That flaw is when a team pushes the ball up so recklessly on offense and scrambles so much on defense that it is impossible to keep the tempo in check. Syracuse was that team.

Ahhhh. Our fatal flaw. The scourge of our model, Duke. Some of our variables include Coach final four appearances so Coach K carried a lot of power.

Brandon Ingram... Gray sob Allen... Other Duke people... They were out there on the court putting their all into it. They were great, they were terrible, they were everything inbetween. It all ended one fateful night with mean, green wearing Ducks ended Dukes tournament.

Our group was pretty dynamic. Everybody had their forte and when all of our great minds came together it was something to behold. We did make some logical decisions that were a great help to us. Using two years to create the model helped us even out our coefficients and led to us not having extreme percentages later on. Some of our success is unexplainable however but I believe there was some method to our madness.

This project was captivating; it was one of the most engaging and immersive project. For our group, a lot was on the line. We were in second place for the majority of the tournament on kaggle. We had a chance at the money. Our chances at winning money was a huge incentive to keep up with basketball. We paid more attention to the NCAAM tournament than we normally would. This project was beyond just doing math, or clicking some buttons to generate a model on Minitab. It was an emotional rollercoaster. For the first 48 games, our model was doing excellent, we were in second place and we thought we had the money for sure. After the sweet sixteen and the elite eight, we dropped down to 4th place on kaggle. We started to doubt our chances a little. We thought we would atleast get the prize money for 4th place which is three thousand dollars. For the championships, we had UNC beating Villanova. If UNC won, we’d get $3000 for sure, if they lost… UNC leads, Villanova leads, UNC leads and then Villanova leads. Marcus Paige shoots a three pointer to tie the game with 4.7 seconds remaining. We had hope. We thought the game would go into overtime, and out of nowhere, a while Kris Jenkins appears with a three pointer, not only winning the tournament for Villanova, but shattering our hearts. So what did we think of the project? It didn’t just mess with our minds, no, it messed with our hearts.

There were a few things that we did wrong. One of them was having so much faith on Duke. We picked a variable that favored Duke way too much(coach final four appearances), this ultimately was our demise. There is no way we would have prevented this, unless we manually altered Duke’s stats to give them a lower percentage to win. The other thing we did wrong was that we did not submit two submissions.

By doing this project, we learned a lot about basketball, like how cruel the game and how it messes with the fans’ feelings. We learned that anything can happen in basketball, which might sound obvious, but it’s true. In basketball a 15 seed school can beat a team favourite to win it all. A 10 seed beating a 1 seed in the elite eight, these are things that can happen. Which leads into the things that we learned about modeling. No model is perfect. You may predict a lot of games, but there are going to be games that you won’t predict. There will always be upsets. It’s impossible to get a model to be perfect.

To the juniors doing this project next year, we suggest that you pick your variables very carefully. Pick a variable that determines a team’s skill like adjusted offensive-defensive efficiency. Don’t favor a single team too much. And last of all, enjoy the project and the basketball games.