

STAT 3355 Project Proposal: College Basketball

Dataset Information:

College Basketball Dataset: Division I college basketball statistics from the 2013 - 2023 seasons

Link: <https://www.kaggle.com/datasets/andrewsundberg/college-basketball-dataset/data>

Recruitment Data: 247Sports' recruitment scores for incoming freshmen from the 2019 - 2024 seasons

Link: https://github.com/lbenz730/NCAA_Hoops/blob/master/3.0_Files/Info/247_recruiting.csv

Background & Motivation:

March Madness is one of the most unpredictable tournaments in sports, with historical performance and recruit rankings often disappointing the audience's bracket predictions. Despite metrics like Adjusted Offensive Efficiency (ADJOE) and Turnover Rate (TOR) being widely used, the role of talent acquisition vs team efficiency has remained unclear, especially with college basketball due to players not being as experienced. This project integrates **10+ years of data** through the above datasets to analyze whether **elite recruiting classes** drive performance or if **team-based efficiency metrics** are stronger indicators of success. Through these insights, we seek to uncover patterns that can guide both analysts and teams in making deep playoff runs through enhanced performance. These insights could also improve **coaching strategies, sports analytics models, and betting markets** by refining how success is predicted.

Questions:

1. Is a team's seed ranking in the previous year related to their odds of getting into the next year's March Madness bracket?
2. How do different factors predict overall success in March Madness?
 - a. Does a team's seed placement predict their overall success in March Madness?
 - b. How strongly does Adjusted Offensive Efficiency (ADJOE) predict overall success in March Madness?
3. Does Effective Field Goal Percentage (EFG_O) explain the relationship between shooting efficiency stats (2P_O, 3P_O) and offensive efficiency (ADJOE)?
4. How does Turnover Rate (TOR) affect a team's offensive efficiency?
5. Do top-performing teams compensate for turnovers through higher shooting efficiency (EFG_O) or stronger defense (ADJDE) compared to lower-ranked teams?
6. How do rebounding metrics (ORB, DRB) correlate with offensive and defensive efficiency?
7. What statistical profile best differentiates Final Four teams from early-exit tournament teams?
8. Can adjusted tempo (ADJ_T) influence efficiency stats like ADJOE and ADJDE, and does this differ between the top and mid-tier teams?
9. How does free throw rate (FTR) impact overall offensive efficiency?
10. Do higher-rated recruiting classes consistently lead to better tournament performance?
11. Are lower-seeded teams with elite recruits more likely to pull off upsets?
12. Which is a better predictor of postseason success: recruiting metrics or efficiency metrics?

Why do you think these questions are interesting and related?

These questions are relevant because they explore key factors influencing success in college basketball, especially during March Madness. By examining preseason rankings, seed placement, and efficiency metrics, we aim to understand how strategic and performance factors impact winning odds. Additionally, recruiting rankings allow us to test whether talent acquisition is the most important factor or if other efficiency metrics better predict deep tournament runs. These questions are interesting because they provide insights into the statistical profiles that shape championship success and competitive advantage.