Effectiveness of Tanking in the NBA: A 30-Year Study

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Problem Statement:

Does “Tanking” help NBA Teams reach the Finals?

Motivation for Research

- The National Basketball Association (NBA) is a personal interest with clean, organized data
- Binary Logistic Regression was my favorite type of regression in DATA621, I liked working with binary response variables
- “Tanking” in the NBA is controversial, studied, and curiously without conclusive results about effectiveness

Literary Review

- There were two main points captured in my literary review:
    - “Tanking” exists in the NBA, and has been prevalent since the late 1960’s
    - In sports worldwide, league incentives can drive teams to win or lose. Teams will always follow incentives.

Data Collection

- To collect data about NBA “tanking” for the research, the teams’ results from 30 NBA were scraped from basketball-reference.com with python

Data Preparation

- The scraped data had NBA Teams' results, but did not have data about "tanking"

- Two columns were added about "tanking"
  - "Years Since Tanking"
  - "Length of Tanking"

Final Dataset

- Example rows of final dataset after preparation:

Year	NBA Team	Finals Appearance	Consecutive Playoffs	Years Since Tanking	Length of Tanking
2020	Boston Celtics	N	6	6	2
2020	Brooklyn Nets	N	2	0	1
2020	Charlotte Hornets	N	0	0	4

Binary Logistic Regression Model

- With the data scraped, prepared, and explored, a Binary Logistic Regression Model was created in R

- Response: “Finals Appearance”

- Predictors:
  - “Years Since Tanking”
  - “Length of Tanking”
  - “Consecutive Playoff Appearances”

Odds Ratio and Standardized Regression Coefficients

- To assess the impact of each predictor in the Binary Logistic Regression Model, two metrics were calculated:
    - Odds Ratio: the increase in chance the response will be 1 for each unit the predictor increases
    - Standardized Regression Coefficients: the effect of the predictor on the response compared to all other standardized predictors

Results

LG Reliability Results

- For significant positive results:
  - Odds Ratio > 1.05
  - Standardized Regression Coefficient > 0.05

Variable	Odds Ratio	Standardized Regression Coefficient	Conclusion
Years Since Tanking	1.006	0.012	No positive relationship on NBA Finals Appearance
Length of Tanking	0.935	-0.103	No positive relationship on NBA Finals Appearance

Conclusion: “Tanking” does not help NBA Teams reach the FInals

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