Effects of NBA Schedule on Game Results

Mitchell Jones
University of Oklahoma
CS-5483-995 Network Science
Dr. Sridhar Radhakrishnan
October 3, 2022

The effects of the National Basketball Association (NBA) schedule on game results is the problem to be examined. The problem is a two-part problem outlined in the below questions. Before the problem is outlined in detail, a "rest day" need first be defined. For this analysis, a "rest day" is any day part of the NBA calendar that an organized game against another opponent is not played. This includes travel, practice, or any day a game was scheduled to be played but cancelled before the games was started. For this problem, a weighted directed network will be used with the team cities as nodes and path a team travels as the edges.

A Python NBA API made for easier web scraping the NBA official website will be used to extract info on each game, including but not limited to the winning team and point differential. The data is returned as a Python dictionary or dataframe. Data will be queried by season and team, with multiple seasons being examined for each team to account for injuries or other contributing factors. Though this may not remove all bias, it should eliminate a reasonable amount for this problem's purposes. This API will also be used to get the city of each team to calculates distances from one city to another, forming a second dataset.

This problem is of interest to NBA teams to find a preferred schedule. More specifically, is there a certain number of rest days that is preferred over certain parts of the schedule? The first question being analyzed is "how does the number of rest days impact the number of games won and point differential over a defined period of games?" This will be examined over different periods of the season as well as different numbers of games. The periods being analyzed are for

1, 2, 3, and 5 games played as well as any other periods that trends may be found in. The second question is “how does traveling from a specific city to another impact the number of games won and point differential over a defined period of games?” The same periods outlined for the first question will be used on the second with the distance traveled being included as well.