ASSIGNMENT #1. WHY ARE CERTAIN BASKETBALL TEAMS SUCCESSFUL?

Background

The use of data and analytics within professional sports has grown considerably in the past several years. This allows for more data driven and informed decision making and allows sport professionals to challenge assumptions that have often been held by coaches and players. In that spirit, I would like to use play-by-play (NBA) basketball data to provide some analytics on what makes certain players or teams successful (I will highlight the specific questions and data points that I am asking you to answer below).

Some of you will find this exciting just because you have an interest in basketball. However, if you do not, you may ask yourself why we are using this data and context for this assignment. Sports provides a context where the client (your managers, the audience in your presentation, etc.) will know more about the empirical context than you do. Therefore, you have to be careful and data driven making sure that your assumptions and arguments are consistent with what your audience expects. If you do not feel comfortable with this, try to first get some background on basketball (either watching games, watching analysts discussing games, etc.).

As before, this assignment is unstructured and it is up to you to define how you will do the analysis, and how you will define various metrics. Start from the goal you are trying to reach, and work towards how you can provide an answer with the data you have been given.

Assignment (Select Only One of the Two Choices Below)

Part A) *How does a team best use a "power partnership"?*

In the past several years there has been a growth of power partnerships (teams with multiple star players). Examples include Anthony Davis and LeBron James, Kawhi Leonard and Paul George, Stefan Curry and Klay Thompson, and James Harden and Russel Westbrook, James Harden and Kevin Durant.

However, having several star players brings with it certain challenges. For example, teams have to consider when they should be playing these star players. Should they play them together, or spread them apart so they have one player on the court at all times? Should they pair their star players when going against the start players of the opposition?

It is up to you to select the players you would like to study (whether a single partnership, or several). It's also up to you to select the metrics based on which you will describe success (what it means if a power partnership is playing well versus not). The point of the assignment is to be clear in articulating your logic and providing appropriate evidence from the data. You do not need to use complex analytics. You can complete this assignment with any tools (e.g., Excel, Stata, Python, etc.). The key is that you thought about your data selection and metrics carefully.

<u>Part B)</u> *Do great players make their teammates better?*

A common saying about star players was that they make their teammates better. Can we observe evidence of that from play-by-play data? Your task is to see if there is any evidence to support this claim?

You have considerable flexibility regarding how you might define and measure what constitutes a player making their teammates better. Does this mean a player with many assists? Does this mean that when a player is on the court, their teammates play better? If having a star player on the court means that teammates face less defensive pressure (as teams are focused on defending the star)? Do star players make their teammates better on offense, or also on defense?

You do not need to answer all of these questions. You can define just one or come up with another one on your own that speaks to the main question above. The main focus of this project is that you have to use data to provide insights that speak to this broader question.

Deliverable

Summary slides with a max of 3 slides summarizing your approach to Part A or Part B (**Only need to select one**). Do not need to show any programming code but attempt to show visualizations or clear figures summarizing your findings. You can include an appendix file with code (if any) or any other information you find helpful, but this is optional. If you would like, I would also be happy to provide you with feedback on your approach early on enough in the assignment.

Data

I will be providing you with the following datasets:

- 2017 - 2018 NBA Season Play – by – Play Data
- 2018 - 2019 NBA Season Play – by – Play Data
- 2019 - 2020 NBA Season Play – by – Play Data

You do not need to use all of this data. You can only focus on a single year, or a single data matchup. The key is to select the data that can be the most useful for your specific focus.

Due Dates

- Choose one from Part A) or Part B) *(Due Mar 30, 11:59pm ET)*

Grading

Grade Component	Weight of Total Grade 15% (Only select one of the two choices)
Part A) *How does a team best use a "power partnership"?*	15%
Part B) *Do great players make their teammates better?*	15%

Grade Rubrics	Share of Assignment
Have you understood the question correctly?	10%
Empirical Approach (*Do you have a plausible approach to answer the question?*)	40%
Insights (*Do you arrive at meaningful and informative insights?*)	40%
Style (*Is it clear and well explained?*)	10%