Sports Analytics Semester Project

Determining if Implementing a Salary Cap in MLB would affect Competitive Advantage

Topic Summary: One of the most debarred questions in MLB relates to the possible implementation of a salary cap, as MLB is the only major US sport that has yet to implement a hard salary cap. This topic will attempt to determine if implementing a hard salary cap in MLB will have any affect on competitive advantage for large-market teams, as there has been some speculation lately that small-market teams are left behind in free agency from star players.

Problem Definition: Will the implementation of a hard salary cap in MLB change the current dynamics of competitive advantage that we see for large-market teams?

Justification: With the next MLBPA meeting upcoming in 2027, there has been a lot of discussion on a possible lockout due to the salary cap argument. Owners (especially smaller-market teams) want the salary cap to improve their competitive advantage, while players do not want a salary cap, as a salary cap will limit the amount of money that stars can be paid.

Key Metrics: The combination of the below three metrics will be the base of research in determining the effect of a salary cap in MLB (Luxury Tax was introduced to MLB in 1997):

1. MLB: Team Payroll Rankings since 1997

2. MLB: Number of Playoff Appearances since 1997

3. NHL, NBA, NFL: Win % of Small-Market Teams vs Large-Market Teams since Salary Caps were Introduced in Each Respective Sport

Unit of Analysis and Scope: Team-level data will be used for this topic, and the boundaries will be per season.

Data Sources & Access Plan: BaseballReference, Fangraphs, MLB. These are publicly available sources.

Mini Literature Scan:

1. https://www-2.rotman.utoronto.ca/insightshub/finance-investing-accounting/salary-cap

    a. NFL and NHL salary caps have worked out well for players.

2. https://www.espn.com/mlb/story/_/id/46294140/mlb-labor-negotiations-salary-cap-baseball-talks-2027-season-lockout

    a. Owners reflect on the Dodgers ability to gain advantages in free agency as a result of their franchise value.

3. https://www.forbes.com/sites/maurybrown/2025/08/31/the-top-reasons-why-mlb-likely-pushes-for-a-salary-cap/

    a. Highlights the main reasons why MLB would push for a salary cap in the coming years.

Exploratory and Preprocessing Plan: Normalization and Scaling will definitely need to be done in order to organize the data. However, I do not foresee any missingness in this data, as this is a topic that is heavily looked at. The only area of potential missingness is when I look for the impact that implementing a salary cap has had on other sports, such as NHL, NBA, and NFL.

Modeling Direction: Not 100% sure which model will need to be used here yet. Possibly logistic regression, assuming the data is linear. If the data is not linear, Random Forest may work better.

Risks and Ethical Considerations: The only issue with this analysis that I can foresee is the possibility of biases in salary cap data from sports outside of MLB. Each sport operates differently, so the effect on competitive balance on MLB with a salary cap may be different than that of NHL, NBA. and NFL.

Next Steps: Collect data and organize in Excel, perform initial EDA, refine KPIs.