

Dollars for Doubles

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Introduction

In 2019 Mike Trout set the MLB record for largest contract ever signed at \$426 million. But with the league minimum at \$700,000 in 2022, is it really fair to say that he performs at a level 609 times better than his “minimum wage counterparts? That is exactly the question this paper aims to address, to what extent is offensive performance, in the MLB, awarded in salary?

This paper is of particular interest to owners and baseball operations personnel in the MLB but is also of interest to the general public. Often when building new stadiums or renovating a current one, a city will financially support their team making the taxpayer’s part owners in the franchise. Therefore, the general public should have an interest in how their money is being spent by these teams, since the teams have enough money for blockbuster deals but not enough for the stadium they want.

This paper uses a two-stage least-squares regression to first quantify a player’s offensive performance in a given season. Then, the player’s performance is compared to the real salary that they earned also in that season. The data used comes from the Sean Lahman relational MLB database. This database is free and available to the public. The data base has observations on a plethora of statistics either directly or indirectly related to the MLB and its teams. This includes data on

offensive outcomes for both teams and players from 1871 to 2021. There is also salary information that spans from 1985 to 2016. The intersection of the three of these data sets has over 15,000 observations.

Ultimately, this paper reaches the conclusion that there is a weak but positive relationship between offensive performance and real salary. This makes intuitive sense since offensive performance should be rewarded by the market, yet there are other factors that influence a player's salary. Defensive performance and fan opinion just to name a few. Further research to calculate the quantifiable aspects of a player's performance is needed to remove as much endogeneity and approach the true relationship of a player's performance to their salary.

Literature Review

Arbitrage opportunities are created from inequalities of information between parties. Thus, MLB teams are not keen on sharing the information they have with the public, because of fear that their competitors can use their information against them. Thus, there is not much professional work done on baseball research that is available for consumption other than work done by casual fans.

This paper is not the first to consider how player performance is rewarded in the MLB. After the 1974 labor strike in the MLB Gerald W. Scully published his article *Pay and Performance in Major League Baseball* where he considers a similar topic. His goal is slightly different, focusing on measuring the economic loss of players due to the reserve clause in all MLB player's contracts. However, in order to reach this conclusion he must first calculate player's marginal revenue and uses simplifying assumptions of ratios to represent offensive and defensive performance, instead of OLS estimators of runs like this paper. His conclusions are similar to this paper's in that he

also concludes that offensive performance is a poor sole explanation variable for player salary. However, his model improves greatly when he accounts for defensive achievements meaning that follow up papers on this paper's topic are likely to greatly help this paper's explanatory power.

Theory/Model

Data Description

Empirical Model

Results/Implications

Bibliography