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BEHAVIORAL BIAS AND MANAGER SUCCESS IN MAJOR LEAGUE BASEBALL

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Abstract

Using results from 26 Major League Baseball seasons, we investigate the connection between behavior bias, managerial success, and tenure. We ask whether managers that have overachieved, relative to prior seasons, have a greater chance of remaining in that role, and if so, what was the subsequent effect on team performance. Our results indicate that MLB owners and team general managers are susceptible to behavioral biases. Team managers that overachieve in a season, relative to recent, historical team performance, endure longer tenures with their team, however, overachieving managers have statistically similar career win percentages to managers who underachieved. This result suggests that outperformance shouldn't be a factor when evaluating team managers but is often a driving force for decision making.

Keywords

Behavioral Economics, Labor Markets

JEL: D22, D84, L83, M51

1. Introduction

Over the last 25 years, behavioral economics has permeated the theoretical underpinnings of modern neo-classical economics and has put into question the assumption of rational expectations. Massey and Thaler (2013) highlights efficient markets failures when NFL owners forecast performance and prices for drafted players. To highlight biases in decision making, we offer evidence supporting biased judgment using data from Major League Baseball (MLB). Our aim is to evaluate managerial turnover, and investigate the link between owners and a possible anchoring bias, where we use the definition to mean individual's decisions are infuenced by an uninformative number, the anchor. Taking data from the past 26 MLB seasons, this paper outlines the bias that may impact a theoretically efficient labor market.

Silvers and Susmel (2014) suggests departure from an efficient, rational labor market is possible in MLB. Their results imply the compensation of MLB managers rewards prior success, anchoring expectations, while current team performance is unaffected by a manager's salary. This result points to a precedent of biased decision making - the sunk cost fallacy - in a labor market assumed to be efficient and rational. Additionally, Massey and Thaler (2013) uses data from the National Football League to observe draft day decisions. The paper concludes that NFL teams overvalue top draft picks due to a myriad of behavioral biases, and points to psychological research that identifies non-regressive predictions, overconfidence, the winner's curse, and false consensus as potential reasons why an efficient market, and rational expectations, fail to exist.

Using Silvers and Susmel (2014), as well as Massey and Thaler (2013), as precedent for non-rational behavior, our analysis observes a delay in the termination of managers and manager turnover due, in part to a cognitive bias, like anchoring. Primarily, our analysis follows from Gilovich, et al. (1985), which offers evidence that individuals condition predictions on past performance, while performance itself is unrelated to prior outcomes. Our belief is that owners are influenced by a short sequence of winning, believing it represents the true performance generating process. Thus, managers that overachieve, relative to a 5-year rolling average of team win percentage, have a longer league tenure than managers who never overachieve. Our main conclusion is that managerial career win percentage is statistically identical between overachieving and underachieving managers.

The remainder of the paper is organized as follows. Section 2 discusses the data set, key features of manager performance, and the metrics aimed at measuring managerial impact on team performance. We discuss the potential for behavioral bias in section 3 and offer evidence of biases in managerial turnover. The final section concludes.

2. Data and Data Description

To assess the performance of managers, we use data from 26 Major League Baseball seasons; the period spanning 1992-2017 for 851 total observations.

Team and manager performance data were downloaded from the Lahman's Baseball Database and MLB.com. Over this period there were 218 managerial changes.[1]

Initially, we generate two metrics of performance for managers: career win percentage and current-year win percentage. Win percentage is the total number wins divided by the number of games managed. To observe the impact of turnover on team performance, we identified 218 manager changes, either prior to or during the current season. Out of the 218 manager changes, 70 percent of incoming managers had a better career win percentage compared to the current-year win percentage of the outgoing manager. For all turnover, however, only fifty-five percent of manager turnover resulted in an improved team win percentage in the subsequent year. From this cohort, general managers and owners overwhelmingly favored replacing managers, 80 percent of observations, with managers that had better career win percentages.

Additionally, we look to see if the timing of the managerial change plays a role in the success of the team. There are two managerial decisions to make: replace managers prior to the season, or during the season. From the 218 manager changes, 40 percent of managerial changes occurred during the season. From those 87 observations, only 56 percent of mid-season changes resulted in an improved team win percentage, with 72 percent of manager replacements coming from managers with better career win percentages than the current-year win percentage of outgoing managers. Again, this shows that general managers and owners favor replacing managers with those that have higher career win percentage. This doesn't guarantee success, however, with 68 percent failing to outperform the manager they replaced.

This initial analysis provides evidence for a somewhat obvious conclusion. Even though turnover doesn't guarantee better team performance, general managers almost always replace outgoing managers with managers that have better win percentages than predecessors. Table 1 summarizes the results.

Table 1: Selected Statistical Results

Observed Result	N	Frequency	Percentage
Total Team Seasons	851		
Managerial Change	851	218	25.6
Win Percentage Improved	218	120	55.0
Win Percentage Improved and Replaced with Better Manager	120	95	79.1
Mid-Season Managerial Change	218	87	39.9
Win Percentage Improved	87	49	56.3
Win Percentage Improved and Replaced with Better Manager	63	37	58.7

[1] We eliminated two data points that resulted in interim managers, but not a turnover of management.

3. Behavior Bias and Anchoring Bias

Similar to the work in Massey and Thaler (2013) and Gilovich, et al. (1985), our scope extends to understanding the behavior of MLB teams and owners, and to investigate any bias that may lead to infficient market outcomes - primarily, managerial turnover.

We begin by assessing “the law of small numbers" and the perceived reflection between small sample sizes and larger trends as it pertains to managerial career win percentage. If a MLB team wants to assess a potential manager against the basic assumption that they win more games than they lose, how many observations would be needed to accurately make this assessment? If a team wants to employ a manager with a career win percentage of say 50 percent, which is just above the average career win percentage of 49 percent for sampled managers, that manager would need a sample of roughly 1000 games, or just over six seasons to reach statistical significance.[2] In our sample, only 52 of 155 managers have a tenure long enough to be assessed using this standard. The average career win percentage for managers in our sample is 0.486 with 70 percent of managers at 50 percent or below. As a result, our interest in win percentage changes from career win percentage, to the number of games needed to statistically match their terminal year win percentage or career win percentage. In essence, how long does it take to observe the ceiling of managerial talent?

To understand managerial effects over time we compare the cumulative win percentage at time *t* to career win percentage at terminal year T, where T is the terminal year that a manager managed any team. For 840 managers in the sample, a manager’s *t* cumulative win percentage is not statistically different from career win percentage in the terminal year. This is a major result of the paper. Managers enter the league and perform in line with their terminal year career performance, with a few notable outliers. [3]

This exercise creates an important bridge to observe how anchoring, or above average seasons in our application, play a role in managerial turnover. If an owner knows the manager’s potential, transitory changes in performance should not lead to longer tenure, yet this is exactly what we uncover.

3.1. Results from Anchoring Bias

If managers win 50 percent of their games, which is above the average career winning percentage and in the 70th percentile of career winning percentage, does having an overachieving season distort the perception of owners? We believe this recency bias can condition owners and anchor expectations of future outcomes on prior performance when future performance and transitory changes in win percentage are independent. To account for team success, we define “overachieving” as managers who have a current season win percentage greater than the previous rolling 5-year average for the team. To show that anchoring bias exists in MLB managerial decision making, we must show two outcomes: managers that consistently overachieve should have a career winning percentage different than 48 percent, the observed league average, and secondly, having multiple overachieving years should reflect a career winning percentage that is higher than managers who have never overachieved.

To explore the second condition, we compare the rolling 5-year average of team win percentage to a transitory change in win percentage for each manager in the sample. If the manager has an overachieving season, we observe the length of time until a manager is fired or until another overachieving season is reached.

We find that overachieving is common, with 71 percent of managers overachieving at least once in their career. On average, managers overachieved in 2.7 seasons during their career. To translate overachieving into tenure, we divided managers into three categories: overachieving multiple times, overachieving once, and never overachieving. For all 155 managers, the average amount of games managed was 982 or six seasons. For the 116 managers that overachieved, at least one, the average tenure is 1239 games or almost eight seasons, which is also over 1000 games more than managers who never overachieved. Even for managers who coached a full season without overachieving the difference is 820 games. Table 2 contains the full breakdown of games managed.

[2] Using a one-tailed test and an α =0.05.

[3] For 11 of the 851 observations, a manager’s t cumulative win percentage was statistically different from their terminal career win percentage. On average, these eleven managers needed four years to reach their terminal year win percentage. This number is skewed by Joe Torre, who needed 14 years to reach his end of career winning percentage. Without Joe Torre the average drops to just over three seasons.

Table 2. Average Games Managed

Cohort	games	seasons	*N*
All Managers	982	6.1	155
Overachieve, all managers	1239	7.6	116
Underachieve, all managers	227	1.4	39
Underachieve, managers who coached a full season	419	2.6	17
Overachieve, only once	456	2.8	34
Overachieve, multiple	1587	9.8	76
Average games managed for all managers between overachieving instances	235	1.5	76

Note: Overachievers are defined as having a win percentage in the current season greater than the rolling 5-year average for the team.

Comparing managers with multiple overachieving seasons and those never overachieving, the average number of games managed between overachieving seasons was 235 and for managers who never overachieved, the average until termination was 227 games. Table 3 presents the win percentage of each cohort.

The data suggests that a transitory, overachieving season leads to longer managerial tenure, and thus, more chances to overachieve. Future performance, however, is not conditional on prior performance. The main conclusion of this paper is that win percentage between managers with multiple overachieving seasons and those managers that never overachieved is statistically identical.[4] It appears that MLB owners are indeed susceptible to recency bias with overachieving performances anchoring expectations.

Table 3. Average Career Win Percentages by Cohort

		z-score	Phi(z)
Overachievers	0.497		
Underachievers	0.454		
Difference	0.043	0.4661	0.6794
All managers	0.486		
Difference for Overachievers	0.011	0.1792	0.5711
Difference for Underachievers	-0.032	-0.3585	0.3600

Note: Win percentages for the different cohorts of manager performance.

4. Conclusions

Attempting to highlight an anchoring bias in MLB managerial turnover, we look at the past 26 MLB seasons and find that the career winning percentage for managers who overachieve is statistically identical to managers who never overachieve leading to overpaying for managerial "talent". This inefficiency in capital allocation arises from the results from Silvers and Susmel (2014) indicating managers are often paid for prior performance. Additionally, we estimate that a manager would need to coach in approximately 1000 games to observe a career win percentage statistically different from 48 percent. Although some managers have a career win percentage of about 50 percent, most tenures end before reaching 1000 games, which could play into an observable survivorship bias in the results.

Ideal conditions for measuring and interpreting cognitive bias in MLB decision making may not exist. A recent paper from Miller and Sanjurjo (2018) shows that a measurement bias in conditional data

[4] We recognize the issues related to survivorship bias, in our sample, as it relates to overachieving. Managerial talent is not random, and general mangers will be able to identify talent which may impact our results. Out of the 34 instances where manager career win totals were larger than the managers included in the sample, indicating managers who predated the 1992 season, 26 managers had an overachieving season. Six had overachieved multiple times prior to 1992. Out of the remaining two managers, only one never overachieved. The other manager was an interim manager and did not overachieve.

contributes to the conclusion of the hot hand bias. Once the measurement bias is eliminated, the conclusions of the hot hand are overturned again supporting the fallacy.

We understand that our assessment is a conservative treatment of MLB organizational decision making and further research is needed. Yet, we believe our conclusions are important to see that interruptions in a rational, effcient labor market exist.

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