IJHSR
ijhighschoolresearch.org
RESEARCH ARTICLE

The Intersection of MVP Culture and MLB Revenue

Michael R. Bronshteyn

Calabasas High School, 22855 West Mulholland Hwy, Calabasas, CA, 91302, USA; Mbronshteyn070@gmail.com
Mentor: Jason Damm

ABSTRACT: This study analyzes the impact of a Major League Baseball (MLB) player's Most Valuable Player (MVP) season on their team's financial performance, specifically focusing on gate receipts and attendance metrics. Utilizing data across multiple seasons from MLB teams, the study employs statistical analysis through data gathered in a panel regression to determine the correlation between a player's MVP season and subsequent changes in these financial metrics. The findings suggest that an MVP season can significantly increase a team's gate receipts and attendance, as fans are drawn to witness exceptional performances. Further study could extend these findings by gauging the long-term financial impact of an MVP season, including how merchandise sales, media rights, and sponsorships are changed in subsequent seasons. Furthermore, investigating factors such as the economic environment, fan demographics, and team market size that impact the financial outcomes of an MVP season would offer even more detail in the development of these financial results. This study's dataset, covering the 2009-2019 timeframe, does not account for more contemporary trends or external economic factors like recessions, which can influence fan spending behavior.
KEYWORDS: Mathematics, Panel Regression, MVP Season, Gate Receipts, Attendance.

Introduction

In Major League Baseball (MLB), a player's Most Valuable Player (MVP) season can have a profound impact on a team's financial performance, specifically on gate receipts and attendance. An MVP season, marked by remarkable individual achievements, not only demonstrates elite skill but also drives significant economic growth for the team. The draw of witnessing talent firsthand often increases fan interest, leading to higher attendance at games. Fans are drawn by the opportunity to see a player performing at their peak, creating a heightened sense of excitement around each game.[1]

A panel regression model was used to analyze the relationship between MVP seasons and the dependent variables. A panel regression combines cross-sectional data (multiple teams) and time-series data (multiple seasons), allowing for the analysis of how changes in MVP status affect financial metrics over time. This method is ideal for this study because it accounts for both variations across teams and the passage of time while controlling for unobserved factors that could influence outcomes, such as team location, market size, or long-standing fan bases. By employing fixed effects, the model isolates the true impact of an MVP season on the financial vitality of MLB teams.[2]

To better understand this dynamic, the following sections will explore historical data on attendance and gate receipts before, during, and after MVP seasons across several MLB teams. Through this analysis, the goal is to quantify the financial impact of an MVP player on an MLB franchise.

Literature Review

The economic impact of star players, particularly during standout seasons, is a well-established phenomenon in sports economics, often referred to as the "Superstar Effect." Rosen first articulated this effect, positing that a small group of exceptionally talented individuals, or superstars, amass a disproportionate share of market attention and revenue.[1] His theory suggests that fans are uniquely drawn to witness extraordinary talent, creating heightened demand and a higher willingness to pay for tickets to games featuring these players, thereby leading to significant financial returns for teams with star athletes.

Studies in both the NBA and MLB demonstrate the substantial role star players play in driving attendance and revenue. Hausman and Leonard found that dominant players in the NBA, like Larry Bird, could increase game attendance by up to 50%, indicating that fans are not solely motivated by team success but are also attracted to individual performance excellence.[3] This reflects fans' desire to see players with elite skill sets in action, a factor that can sustain attendance and drive revenue even during seasons of suboptimal team performance. Similarly, Scully showed in MLB that teams with MVP-caliber players experience significant boosts in ticket sales as fans willingly pay premium prices to watch these standout players perform.[4]

The presence of a star player in MLB, particularly during an MVP season, is shown to have a lasting impact on fan turnout and revenue. This aligns with the findings of Berri *et al.*, who demonstrated that NBA teams with marquee players maintained strong attendance levels, largely due to the intrinsic draw of individual star power.[5]

Furthermore, the impact of an MVP season can have a lasting impact on a team's revenue, often strengthening a team's market positioning and revenue in subsequent years. Humphreys and Johnson found that in MLB, the visibility and popularity from an MVP season could lead to a more loyal fan base and sustained interest in the team, cultivating higher long-term attendance and merchandise sales.[6] This prolonged

DOI: 10.36838/v7i8.6

fan engagement is typically enhanced by strategic marketing and promotional efforts, including premium seating, special events, and merchandise linked to the MVP player, which serve to maximize both immediate and long-term financial benefits.

Contemporary research further bolsters the notion that star players significantly influence game attendance and financial outcomes beyond their direct contributions to team success. Humphrey and Johnson concluded that superstar players generate substantial externalities, increasing both home and away game attendance. Their findings specifically suggest prominent basketball players such as Michael Jordan attracted over 5,000 additional fans per game, emphasizing the idea that the presence of a marquee player can have widespread economic implications for a sports franchise.[7]

Moreover, Slusser deduces that the presence of achieving players is positively correlated with increased attendance, indicating that fans are more likely to attend games featuring high-performing players. These results underscore the significant role star players play in driving fan engagement for franchises.[8]

In conclusion, the literature strongly supports the notion that MVP seasons and star player performances have a significant positive impact on teams' financial outcomes. This is particularly evident in leagues like MLB and the NBA, where the opportunity to witness exceptional athletic performances drives fan engagement, ticket sales, and brand loyalty. Thus, teams can strategically leverage star players to enhance both immediate and future profitability.

Methods

This study examines the financial factors influencing Major League Baseball (MLB) teams, focusing on two key dependent variables: gate receipts and attendance. The data spans from 2009 to 2019, with each MLB team represented as an individual in the panel, labeled from 1 to 30.

Data Collection:

Dependent Variables:

Gate Receipts: The revenue generated from ticket sales for each team.

Attendance: The number of attendees at each game for each team.

Quantitative Variables:

MVPYear1: Indicates if a player from the team won the MVP award in the previous year.

MVPYear2: Indicates if a player from the team won the MVP award two years prior.

MVPYear3: Indicates if a player from the team won the MVP award three years prior.

Record Wins: The number of wins recorded by the team in a season.

Playoff Appearances: Indicates if the team made the playoffs.

Division Win: Indicates if the team won its division.

This study estimates the following panel regression model with year and team fixed effects:

Equation 1:

$$Perf_{i,t}=\beta_1 MVP1_{i,t}+\beta_2 MVP2_{i,t}+\beta_3 MVP3_{i,t}+\partial X_{i,t}+j_t+\rho_i+\varepsilon_{i,t}$$

Perf is the performance of the team gate receipts or attendance for team (i) in year (t)

MVP is an indicator variable for teams (i) that had an MVP one year ago (MVP1), two years ago (MVP2), or three years ago (MVP3), in year (t)

X is a vector of control variables for team (i) in year (t) that include the team's number of wins that year, an indicator for whether the team won the division, and an indicator for whether the team made the playoffs.

j are fixed effects

p are fixed effects

A panel regression is well-suited for this study as it accounts for cross-sectional (team-specific) and time-series (year-specific) variations, providing robust insights into the dynamic nature of financial outcomes across different teams over time.

Result and Discussion

Analysis of Gate Receipts:

Summary Statistics:

The mean value of gate receipts is 83.739 million with a standard deviation of 56.220 million, reflecting variability across teams. This large standard deviation suggests significant differences in ticket revenue among the MLB teams, influenced by factors like team performance, fan base size, and stadium capacity.

Goodness of Fit:

R-squared: 0.294, indicating that 29.4% of the variation in gate receipts is explained by the model. This suggests that while the model accounts for some of the variation, a significant portion remains unexplained, pointing to other potential factors not included in the model. Adjusted R-squared: 0.210, which adjusts for the number of predictors in the model. This indicates that after accounting for the number of variables, about 21% of the variation in gate receipts is explained. The lower adjusted R^2 compared to R^2 suggests that some predictors may not add substantial explanatory power.

Significance Tests:

F-statistic: 20.420 with a p-value of <0.0001, suggesting that the model is statistically significant. The p-value indicates a less than 0.01% chance that the relationships observed are due to random variation, confirming that the combined effects of the predictors meaningfully influence gate receipts.

Coefficients:

MVPYear1: Positive effect on gate receipts (estimate: 8.132, p-value: 0.055). This indicates that a team's MVP win in the current year has a marginal impact on increasing gate receipts, though it is just above the threshold of statistical significance (0.05). This suggests that the effect could be relevant but warrants further investigation.

MVPYear2: Positive effect (estimate: 15.804, p-value: 0.000), indicating that an MVP win from the previous year significantly boosts gate receipts. The low p-value highlights a

strong relationship, as it suggests the impact is unlikely to be due to chance.

MVPYear3: Strong positive effect (estimate: 19.565, p-value: <0.0001), emphasizing that an MVP win from two years ago has a lasting positive effect on ticket sales. This suggests that MVP recognition can continue to attract fans well beyond the season in which the award is won.

Record Wins: Positive impact (estimate: 0.448, p-value: 0.014). This means that as a team wins more games, their gate receipts tend to increase, likely due to heightened fan interest and demand for tickets. Playoff Appearances: Not statistically significant (p-value: 0.401), indicating that merely making the playoffs does not have a significant direct impact on gate receipts.

Division Win: Significant positive impact (estimate: 10.128, p-value: 0.007). Winning a division correlates with higher gate receipts, likely reflecting the prestige and increased fan engagement associated with this achievement.

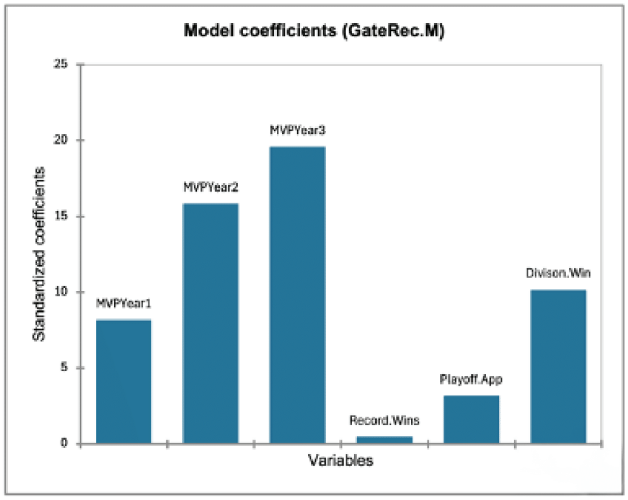

Figure 1: This figure illustrates the estimated coefficients from the regression model evaluating the impact of MVP seasons and other performance variables on gate receipts. It highlights the magnitude and statistical significance of each predictor, demonstrating that MVP seasons, particularly from prior years, and team success metrics, such as division wins, positively influence ticket revenue. This figure highlights that MVP seasons, particularly from two and three years prior, significantly boost revenue, with MVPYear3 having the strongest long-term effect.

The mean gate receipts of $83.739 million, with a substantial standard deviation of $56.220 million, as shown in 1, underscore the variability across MLB teams, influenced by factors such as fan base size, team performance, and market dynamics. Key findings reveal a notable positive influence of MVP seasons, particularly in MVPYear3, which demonstrates a lasting financial boost with a significant coefficient of 19.565 and a p-value of <0.0001, as showcased in Figure 1. This impact suggests that fan excitement and engagement remain elevated long after the MVP season.

Table 1: This table presents the estimated coefficients, standard errors, and significance levels for the regression model predicting gate receipts. Key findings include the positive and significant effects of MVP wins from prior years and record wins, with division wins also contributing to increased revenue. The model captures the relationship between individual achievements, team performance, and financial outcomes. The findings reveal that MVP wins from prior years have a sustained positive impact, with MVPYear3 showcasing the strongest correlation to increased ticket revenue.

	Estimate	Std. Error	t-value	Pr(>|t|)
MVPYear1	8.132	4.223	1.926	0.055
MVPYear2	15.804	4.414	3.581	0.000
MVPYear3	19.565	4.702	4.162	<0.0001
Record.Wins	0.448	0.129	3.459	0.001
Playoff.App	3.142	3.735	0.841	0.401
Divison.Win	10.128	3.754	2.698	0.007

Further, as shown in Table 1, there is a significant correlation between team success and gate receipts. The positive coefficients for record wins (0.448) and division wins (10.128) indicate that higher win rates are associated with increased revenue from gate receipts.

Additionally, the R-squared value of 0.294 and adjusted R-squared value of 0.210 indicate that, while the model captures some of the variations in gate receipts, additional unexplored factors likely contribute to revenue differences.

Analysis of Attendance

Summary Statistics:

The average attendance per team is 29,973.221 with a standard deviation of 8,115.263, indicating variability across teams. The substantial standard deviation reflects differing fan bases and stadium capacities, suggesting that factors like team performance, location, and market size have notable impacts on attendance.

Goodness of Fit:

R-squared: 0.341, indicating that 34.1% of the variation in attendance is explained by the model. This means that the chosen variables, such as MVP status and record wins, provide a reasonable explanation of attendance changes, though other factors (like economic conditions or promotional activities) might also play a role. Adjusted R-squared: 0.262, accounting for the number of predictors. The adjusted R^2 being lower than R^2 suggests that while the model explains some variance, the predictive power is somewhat diminished when adjusting for the number of independent variables.

Significance Tests:

F-statistic: 25.318 with a p-value of <0.0001, indicating the model's overall significance. The very low p-value implies that the relationship between the predictors and attendance is unlikely to be due to random chance.

Coefficients:

MVPYear1: Significant positive effect on attendance (estimate: 2308.469, p-value: 0.005). This means that an MVP win in the current year substantially increases game attendance, likely due to heightened interest from fans wanting to see the star player.

DOI: 10.36838/v7i8.6

MVPYear2: Significant positive effect (estimate: 2607.663, p-value: 0.003), showing that an MVP win from the previous year continues to draw fans to games. This suggests a lasting influence of star power on fan engagement.

MVPYear3: Significant positive effect (estimate: 2461.880, p-value: 0.008). Even two years after an MVP win, the award's impact on attracting fans persists, reflecting the importance of star players in maintaining high attendance.

Record Wins: Strong positive relationship (estimate: 165.470, p-value: <0.0001), indicating that a better win record directly translates to higher attendance. This is likely because fans are more interested in watching a winning team.

Playoff Appearances: Not significant (p-value: 0.981), suggesting that making the playoffs does not have a direct impact on regular season attendance.

Division Win: Not statistically significant (p-value: 0.181), indicating that a division win does not necessarily boost regular season attendance figures.

Table 2: This table summarizes attendance-related data, showcasing descriptive statistics for attendance and predictors such as MVP years, record wins, and postseason achievements. The data indicates that MVP seasons contribute to higher average attendance over multiple years.

Variable	Observations	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
Attendance	330	0	330	10013.0	49066.000	29973.221	8115.263
MVPYear1	330	0	330	0.000	1.000	0.061	0.239
MVPYear2	330	0	330	0.000	1.000	0.055	0.227
MVPYear3	330	0	330	0.000	1.000	0.048	0.215
Record.Wins	330	0	330	47.000	108.000	80.988	11.847
Playoff.App	330	0	330	0.000	1.000	0.303	0.460
Divison.Win	330	0	330	0.000	1.000	0.200	0.401

The analysis of attendance data provides valuable insights into the factors driving fan engagement and attendance at MLB games. The average attendance across all teams is 29,973 per game, with a significant standard deviation of 8,115, as noted in Table 2. This variability reflects differences in stadium capacities, market sizes, and fanbase engagement across teams. Table 4 highlights the strong positive impact of MVP seasons, with the coefficients for MVPYear1 (2,308.469, p-value 0.005), MVPYear2 (2,607.663, p-value 0.003), and MVPYear3 (2,461.880, p-value 0.008) all indicating statistically significant contributions to game attendance. These findings demonstrate that the excitement surrounding an MVP-caliber player extends well beyond the award year, maintaining high levels of fan interest for multiple seasons.

Table 3: This table details the coefficients from the attendance regression model, emphasizing the significant positive impact of MVP wins on fan turnout. It also highlights the importance of record wins in driving attendance, while other variables like playoff appearances and division wins show weaker or insignificant effects on regular-season attendance figures. The results show MVP wins boost attendance not just in the award year but also in subsequent years, reinforcing the impact of star players.

	Estimate	Std. Error	t-value	Pr(>|t|)
MVPYear1	2308.469	821.492	2.810	0.005
MVPYear2	2607.663	858.672	3.037	0.003
MVPYear3	2461.880	914.656	2.692	0.008
Record.Wins	165.470	25.167	6.575	<0.0001
Playoff.App	-17.333	726.645	-0.024	0.981
Divison.Win	979.872	730.320	1.342	0.181

Table 3 also reveals a strong relationship between team performance and attendance, as shown by the significant coefficient for record wins (165.470, p-value <0.0001), confirming that fans are drawn to winning teams. However, other metrics, such as playoff appearances (p-value 0.981) and division wins (p-value 0.181), do not exhibit significant effects, suggesting that regular-season success and individual player performance may be stronger drivers of attendance than postseason outcomes. The model's R-squared value of 0.341 and adjusted R-squared of 0.262 indicate that 34.1% of the variation in attendance is explained by the included variables, though other factors—such as economic conditions, promotions, or ticket pricing strategies—may also influence attendance.

Conclusion

This research affirms the positive impact that MVP seasons have on team financial outcomes, particularly gate receipts and attendance. Teams with an MVP player experience a tangible financial boost, which compounds over successive MVP-caliber seasons. Teams with an MVP player enjoyed a tangible financial boost, with gate receipts increasing by approximately $8.1 million in the award year and up to $19.6 million three years post-award. Surprisingly, the impact of an MVP season is not most pronounced in the award year itself but rather reaches its zenith in the third subsequent year, with a $19.6 million increase in gate receipts. The lagged peak contradicts assumptions of temporary excitement and points toward a persistent effect on fan interest. However, the relatively low R-squared values (0.294 for gate receipts and 0.341 for attendance) imply that while MVP seasons and performance metrics explicate a portion of the variance, other variables also play a role in determining financial outcomes.

Moreover, the excitement generated by an MVP player can have a lasting impact beyond the immediate increase in attendance and revenue. Higher fan turnout can lead to enhanced merchandising opportunities, greater media exposure, and a stronger brand presence for the team. These findings align strongly with Rosen's "Superstar Effect," assuring that exceptional individual performance drives revenue not only in the award-winning season but over a multi-year period. Future research could build on these findings by exploring several additional factors. One area worth investigating is the long-term financial effects of MVP seasons, such as how they influence sponsorship deals, media contracts, and overall team valuation over multiple years. Furthermore, studies could investigate the role of fan loyalty and demographics to see how MVP performances drive long-term fan engagement and whether this translates into sustained financial growth. To the administrative side of team operations, this implies that capturing momentum with MVP seasons using strategic marketing, flexible ticketing, and better merchandise may help sustain and accelerate financial returns. As well as increasing investments into longer-term branding by players for even greater leveraging of fan devotion and involvement. A potential confounding factor is that MVPs are more likely to play for teams in larger markets or already successful franchises, which may inherently have higher atten-

dance and revenue levels. This makes it difficult to fully isolate the MVP effect from the market and team context.

Additionally, examining the interplay between external economic conditions and the financial benefits of an MVP season could provide more context for understanding how different markets react to star performances. Comparative research across teams in large and small markets or studies analyzing the effects of MVP seasons during periods of economic downturn or growth might yield valuable insights. By broadening the scope of analysis, future research could provide a more holistic understanding of how MVP seasons affect MLB teams, offering valuable insights for team management, stakeholders, and sports economists looking to maximize the economic potential of superstar players.

Limitations

The study acknowledges several limitations that may affect the accuracy and generalizability of its findings. First, it is constrained by the time range of data (2009-2019), which means that it does not account for longer-term trends or more recent changes in Major League Baseball (MLB) that could

influence how MVP seasons impact financial metrics. For example, shifts in league-wide attendance trends or revenue structures in the post-2019 era could yield different results.

Another limitation is the exclusion of broader economic conditions, such as local or national economic downturns, which could significantly impact fan spending behavior. During recessions, for instance, consumers are more likely to be more frugal with spending, including entertainment expenses like attending baseball games. This means that even an MVP season may not generate the same level of financial boost in a volatile economy as it would in a more prosperous economy. The study also does not fully account for market size variations. Teams in larger, wealthier markets may experience more substantial revenue increases due to higher baseline attendance and stronger local economies, compared to teams in smaller markets where fan bases and disposable incomes are smaller. This disparity could skew the financial impact of an MVP season, as teams in smaller markets may not see the same level of increase in gate receipts and attendance.

Another key factor that was not deeply explored is ticket pricing strategies. Teams often adjust ticket prices during or following MVP seasons to capitalize on increased demand. However, if prices rise too steeply, it could limit attendance growth, particularly for lower-income fans. Conversely, teams that do not increase ticket prices could miss out on potential revenue from premium pricing. The balance between demand elasticity and pricing strategies is crucial but not thoroughly examined in this study.

Finally, the study doesn't fully address external competition from other sports or entertainment options, which may affect attendance and revenue. In markets where multiple professional sports teams or large-scale entertainment events compete for consumer attention, the financial boost of an MVP season could be diluted.

By addressing these limitations in future research, a more comprehensive understanding of the financial impact of MVP seasons can be achieved, providing clearer insights into how external and internal factors shape revenue outcomes across different MLB teams and seasons.

Acknowledgments

I want to thank Professor Jason Damm of the University of Miami for his invaluable mentorship throughout the creation of this paper.

References

1. Rosen, S. The Economics of Superstars. *Am. Econ. Rev.* **1981**, *71* (5), 845–858. http://www.jstor.org/stable/1803469.
2. Torres-Reyna, O. Panel Data Analysis: Fixed and Random Effects using Stata. *Princeton University*, **2007**. https://www.princeton.edu/~otorres/Panel101.pdf.
3. Hausman, J. A.; Leonard, G. K. Superstars in the National Basketball Association: Economic Value and Policy. *J. Labor Econ*. **1997**, *15* (4), 586–624. https://doi.org/10.1086/209839.
4. Horowitz, I. Review of *The Business of Major League Baseball*, by G. W. Scully. *Rev. Ind. Organ*. **1990**, *5* (3), 115–118. http://www.jstor.org/stable/41798319.
5. Berri, D.; Schmidt, M.; Brook, S. Stars at the Gate: The Impact of Star Power on NBA Gate Revenues. *Res. Gate*. **2004**. https://www.researchgate.net/publication/247739515_Stars_at_the_Gate_The_Impact_of_Star_P ower_on_NBA_Gate_Revenues.
6. West Virginia University. An Analysis of Major League Baseball Attendance with Superstar Player Performance and Team Quality Metrics. *WVU Res. Repo*s. [n.d.] https://researchrepository.wvu.edu/econ_working-papers/29/.
7. Humphreys, B. R.; Johnson, C. The Effect of Superstar Players on Game Attendance: Evidence from the NBA. *SSRN Scholarly Paper*, **2017**. https://ssrn.com/abstract=3004137.
8. Slusser, A. The Star Player Effect: Does the Quality of a Player Impact Attendance in the NBA? *Honors Thesis*, Ball State University, **2021**. https://cardinalscholar.bsu.edu/handle/123456789/2021.

Author

Michael Bronshteyn is a junior at Calabasas High School in Calabasas, California. He is interested in analyzing culture by utilizing economic frameworks

DOI: 10.36838/v7i8.6