



Does bigger mean better? Analyzing patterns between large-market sport franchises and winning

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INTRODUCTION

- The goal of this model was to weed out the teams that are doing more with less. Could these franchises with lower values, but who are performing well, attract potential buyers?
- What makes these lower value franchises successful?
- This analysis is meant to show what patterns, if any, exist between these teams and help us figure out why they are performing the way they are

LITERATURE REVIEW

- "Increasing the number of wins will cost a team approximately \$1 million dollars in payroll (Or a 1% increase) to get better players. Alternatively, and additional loss will save the team \$1 million dollars by spending less on players. Spending more money increases the likelihood of making the playoffs or the World Series." (Edwards, 2022)
- "At the end of the day, organizations must make these choices based on their internal preferences. Understandably, some place a higher value on winning, while others favor financial profits. Empirical evidence shows that higher team payrolls tend to lead to greater success on the field (both in the regular season for all sports and in the postseason for MLB, NBA, and NHL), while also typically results in lower operating income." (Arcidiacono & Kimbrough, 2017)

METHODOLOGY

- All data was collected from the 2022 season
- K-means clustering was utilized to sort the teams into four different groups
- The teams were grouped together based off the variables of winning percentage, franchise value, how much money spent on their roster, and the number of TV households in the team's market
- The Euclidean distances from the centroid for each cluster were then evaluated to determine which franchises were best representations

Final Cluster Centers

	1	2	3	4
WinPCT (2022)	-.23563	-.84896	.94414	.29943
Franchise Value	-.75942	1.15701	.47015	.49841
Team Spending	-.80016	.90079	.81740	.39577
TV Households	-.41728	-.20211	-.33655	2.09716

BETTER, BUT NOT BIGGER

Cluster Memberships

Team	Cluster	Distance
Baltimore Ravens	3	.658
Boston Celtics	3	.769
Detroit Lions	3	.812
Phoenix Suns	3	.824
Atlanta Braves	3	.889
Houston Astros	3	.965
Pittsburgh Steelers	3	.980



BIGGER, BUT NOT BETTER

Cluster Memberships

Team	Cluster	Distance
Carolina Panthers	2	.772
Denver Broncos	2	.779
Boston Red Sox	2	.840
Tennessee Titans	2	.929
Cleveland Browns	2	1.029
Washington Commanders	2	1.079



RESULTS

ANOVA

	Cluster		Error		F	Sig.
	Mean Square	df	Mean Square	df		
WinPCT (2022)	14.457	3	.664	120	21.787	<.001
Franchise Value	23.746	3	.431	120	55.053	<.001
Team Spending	24.954	3	.401	120	62.206	<.001
TV Households	31.105	3	.247	120	125.734	<.001

- The results of the analysis of variance (ANOVA) confirmed that all four clusters were different at a statistically significant level across every variable ($p < .001$)

IMPLICATIONS

- As the 2022 season suggests, larger franchises (in both valuation and market size) does not account for more wins in a season
- Oftentimes, these larger franchises are plagued with struggles to win due to internal organizational issues
- Spending could be reevaluated, looking to spend more money on things such as player development rather than contracts
- Getting the most out of the talent that you spend money on. For example, The NFLPA released survey results on how happy players are with their respective organizations. What factors off the field should an organization spend money on to get the most out of their players?

LIMITATIONS & FUTURE RESEARCH

- Only includes one season of data (2022 season). Does not account for historical trends or patterns that could be present in each franchise
- All four of the leagues do not have the same spending rules which can create imbalances in the tests
- The NHL stands out as it is significantly less popular than the other three major leagues
- Future research would include several seasons of data (or even every year of data from the franchise) to determine the historical trends of each franchise. There is also a potential to control for the existence of salary caps among the leagues to determine more accurate clusters. In future research, data from more seasons would be helpful by including trends and events that have happened within organizations in the past that may affect their standing in these clusters