

**Take That For Data!**

**How to React When The General Manager Wants to Talk**

*Project Abstract*

***Research Topic***

Ticket pricing for professional sporting events has undergone a seismic shift over the past decade as clubs have moved toward dynamic pricing practices. By analyzing ticket listings on sites such as StubHub, teams are able to gauge the market value of their product and adjust pricing to either take advantage of demand for high profile games or recognize lower valuations (but incremental revenue) for less marquee events. This generally works because the past few years of secondary market activity can be an excellent predictor of future demand when the team’s performance is steady.

This is not always the case, however. Occasionally, developments on the player operations side of the business can drastically change the value of single and season tickets in the eyes of fans. Cleveland lost LeBron James this season and will almost certainly see a drop in demand for tickets as they drop out of contention for their fifth Finals bid in a row. Conversely, the Lakers signed LeBron, igniting one of the largest and wealthiest fan bases in the world. They can expect to see the value of their tickets rise dramatically from the prior year.

Our project is designed to help teams plan their reaction to franchise-altering events like this as well as smaller shifts in expected team performance. Using secondary and primary market data, we will attempt to segment sections in teams’ arenas from high to low in terms of risk of market value attrition or improvement. Put simply, we want to help teams understand how the value of specific tickets will shift so that they can better identify “at-risk” season ticket holders (assuming that they did not renew before then) or competitively price single game tickets before the season starts.

***Hypotheses***

* We expect that both big and small market teams will exhibit significant changes to ticket demand from one season to another when the roster turns over, and certain parts of the arena (e.g. lower vs upper bowl) will react in different magnitudes to this change.
* We believe the data will show that some teams manage this change better than others, either through proactively pricing their primary tickets in line with the market.
* We believe that proxies for expected performance such as preseason power rankings will be powerful drivers of secondary market prices before the game starts.

***Potential Applications***

* For teams who have lost significant players from the prior year and are expecting a large dip in performance, our analysis can help them understand how to adjust their pricing to maintain engagement with their fans and minimize the fall in revenue. It can also alert them to teams who have managed this process well for identifying best practices in retention initiatives.
* For teams who expect to improve significantly, our analysis can give them a roadmap for raising prices to capture more of the expected increase in fan willingness to pay for themselves rather than the secondary market.
* For teams looking at smaller shifts in team performance, we hope that our analysis will help them understand what kind of price increases the market can bear throughout their arena.

***Proposed Methodology***

* We plan to analyze shifts in secondary market value for tickets from season to season in conjunction with predictors of team performances (change in player win-shares, ESPN.com power rankings, social media sentiment, etc.)
* **[Guys please add some more technical stuff here if possible!]**
* Once the analysis is complete, we expect to build a Tableau dashboard that teams can input an expected team record or power ranking into. The dashboard will then produce a map that predicts shifts in market value for different regions of the arena (e.g. upper/lower bowl, sideline/baseline/corner).

***Data Required***

* This is an ambitious project and we recognize that certain parts of it may not be doable depending on internal data availability. Our ideal “wish list” would include:
  + Raw secondary market listing data for the past three to five seasons, ideally pulled before a season starts but after free agency (actual sale data would be great but we recognize this may not be possible)
  + Primary ticket pricing for each team by price code
  + Manifests (with maps if possible) that we can link these price codes to
  + Anonymized season ticket holder data for each team, specifying tenure of membership. Ideally this would have identifiers that we could use to track members across different years to identify fans who drop out
  + Beginning and ending team rosters over the past three to five years, ideally with measures of player value such as win shares included
* Data we can pull and expect to use includes:
  + Google trend data around each team to track fan excitement
  + StubHub API data for current year ticket listings
  + ESPN.com power rankings