The Demand Side Determinate of NFL Ticket Prices

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I. Research Objective

We study the demand-side determinants of average NFL ticket prices using a panel model for the years 2010 to 2013. We estimate the average ticket price is a function of income, population, the housing price index, winning percentage from the previous season, and other professional sports teams in the metropolitan area of each team. Our results indicate that income had the largest effect on the average NFL ticket price. The number of other professional sports teams was found to have the smallest effect in the average NFL ticket price.

II. Model and Variables

- $LOG(TP_{it}) = f[LOG(I_{it}), LOG(POP_{it}), WP_{it-1}, OPS_{it}]$
- i: represents the specific NFL team.
- t: represents the time period.
- TP_{it}: average ticket price that disregards the luxury tickets, such as those that are deemed "box seats", because they are outliers in terms of the tickets available.
- I_{it}: average income of the people residing in the team's area. It is calculated by dividing the aggregate income of an area by its total population.
- POP_{it}: population determines the audience of each team for which this model applies.
- WP_{it-1}: winning percentage from he previous calculated by dividing the total games won by the total games played. It was chosen because it is considered a good measure of individual team skill, talent, and ability.
- OPS_{it}: other professional sports teams were included in order to capture the substitute value of other professional sports in the city. The presence of multiple professional sports teams indicates an increased preference for sports and inspires a prideful attitude in the city.

III. Hypothesis

- I_{it}: hypothesized to have a positive effect on average NFL ticket price. As income increases, the ability of a consumer to buy an NFL ticket rises as well.
- POP_{it}: hypothesized to have a positive effect on average NFL ticket price. It is expected that the larger the audience the higher the price.
- WP_{it-1}: hypothesized to have a positive effect on with average ticket price. Winning percentage tells the consumer how good each team is based on games won in total.
- OPS_{it}: hypothesized to have a positive effect on with average ticket price. The presence of multiple professional sports teams indicates an increased preference for sports and inspires a prideful attitude in the city. A sports culture in a city increases interest and attendance for all sports in the city rather than creating competition among them.

IV. Data

- Panel model
  - 32 teams
  - 4 years (from 2010-2013)
- Sources for Data
  - ESPN
  - Team Marketing Report
  - U.S. Department of Commerce Bureau of Economics
  - Census
  - Federal Housing Agency

V. Empirical Results

	Model One		Model Two	
	Estimated Coefficients	t-statistics	Estimated Coefficients	t-statistics
Constant	-0.200866	-0.225457	-0.373733	-0.425281
LOG(I)	0.262219	2.733616*	0.320008	3.934171*
LOG(HPI)	0.087253	1.133258		
OPS	0.041796	3.522207*	0.041994	3.535228*
LOG(POP)	0.081412	4.627408*	0.082278	4.675642*
WP(-1)	0.104317	3.940383*	0.104595	3.946465*
Adjusted R-squared	0.580269		0.579299	

*=statistically significant at the 5% level.

VI. Conclusion

- Findings
  - 1% change in the income causes a 0.32% change in the ticket price
  - 1% change in other professional sports causes a 0.04% change in the ticket price
  - 1% change in the population caused a 0.08% change in the ticket price
  - 1% change in winning percentage from the previous year caused a 0.10% change in ticket price
- Implications
  - Our results can be used by NFL expansion teams to estimate the equilibrium ticket price given income, population, other professional sports teams, and anticipated winning percentage.