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

\[ \log(T_{pi}) = \log(\text{POP}_{li}), \log(\text{HPI}_{li}), \text{WPI}_{li-1}, \text{OPS}_{li}, \] 

- \( \text{POP}_{li} \): Population
- \( \text{HPI}_{li} \): Housing Price Index
- \( \text{WPI}_{li-1} \): Winning Percentage from previous season
- \( \text{OPS}_{li} \): Other professional sports teams

We hypothesize that income increases, the ability of a consumer to buy an NFL ticket rises as well.

III. Hypothesis

- \( \text{H}_{1} \): \( \log(\text{POP}_{li}) \) has a positive effect on average NFL ticket price. As income increases, the ability of a consumer to buy an NFL ticket rises as well.
- \( \text{H}_{2} \): \( \log(\text{HPI}_{li}) \) has a positive effect on average NFL ticket price. It is expected that the larger the audience the higher the price.
- \( \text{H}_{3} \): \( \text{WPI}_{li-1} \) has a positive effect on average NFL ticket price. Winning percentage tells the consumer how good each team is based on games won in total.
- \( \text{H}_{4} \): \( \text{OPS}_{li} \) has a positive effect on average NFL 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 (2010-2013)
- Sources for Data
- ESPN
- Team Marketing Report
- U.S. Department of Commerce Bureau of Economics
- Census
- Federal Housing Agency

V. Empirical Results

<table>
<thead>
<tr>
<th></th>
<th>Model One</th>
<th></th>
<th>Model Two</th>
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<tbody>
<tr>
<td></td>
<td>Estimated</td>
<td>t-statistic</td>
<td>Estimated</td>
<td>t-statistic</td>
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<tr>
<td>Constant</td>
<td>-0.209866</td>
<td>-0.225457</td>
<td>-0.373715</td>
<td>-0.452581</td>
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<tr>
<td>LOG(POP)</td>
<td>0.282219</td>
<td>2.735168*</td>
<td>0.292008</td>
<td>3.934172*</td>
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<td>LOG(HPI)</td>
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<td>OPS</td>
<td>0.041796</td>
<td>3.522707*</td>
<td>0.041984</td>
<td>3.535282*</td>
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<tr>
<td>LOG(POP)</td>
<td>0.081412</td>
<td>4.674488*</td>
<td>0.082278</td>
<td>4.676442*</td>
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<td>WPI(-1)</td>
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<td>3.940383*</td>
<td>0.104595</td>
<td>3.946465*</td>
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<tr>
<td>Adjusted R-squared</td>
<td>0.580269</td>
<td>0.579299</td>
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<td></td>
</tr>
</tbody>
</table>

*Statistically significant at the 1% 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.