

**The Erdos Institute – Data Science Bootcamp Summer 2025**  
**Final Project**  
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***The Power of Visibility – Quantifying the Media’s Impact on the Women’s National Basketball Association (WNBA)***

***Pitch:***

Despite growing enthusiasm for women's sports, significant gaps remain in media coverage and investment. But how much does visibility actually shape financial sustainability and audience engagement? This project leverages data science to analyze broadcast hours, and sponsorship patterns across the Women's National Basketball Association (WNBA). By identifying correlations between coverage and long-term growth, we can provide actionable insights that inform marketing strategies, league policies, and investment decisions. The goal? To turn visibility into tangible success and help drive systemic change in how women’s sports are valued.

***Key Stakeholders & Key Performance Indicators (KPIs):***

There are a plethora of people and groups who should have a vested interest in the outcome(s) of this research – WNBA League Officials, Team Executives & Marketing Departments, Corporate Sponsors, Sports Media Outlets and Broadcasters. In terms of KPIs, there are multiple metrics via which we can measure success:

1. Visibility & Coverage: Change WNBA broadcast hours by year and platform.
2. Engagement Metrics: Social Media impressions, shares, and growth over time.
3. Audience Growth: Changes in game attendance or digital viewership.

***Data:***

The WNBA and its sponsors do not release detailed, granulated data on sponsorship agreements or broadcast contracts. Therefore, I have built this dataset utilizing the following third-party sources:

- Broadcast Data: Using *Across the Timeline*, I first constructed a dataset that included all broadcasted WNBA games from 2019-2024. This includes *Home Team*, *Away Team*, *Game Type*, *Broadcast Network* and *Broadcast Channel*.

- **Sponsorship Data:** Using *SponsorUnited's* annual *Women in Sports Marketing Partnerships* report, I constructed a dataset that included the annual average value (AAV) of the WNBA's *Media* and *Sponsorship Revenue* from 2019-2014. As previously mentioned, the WNBA does not release granulated data on sponsorship agreements or broadcast contracts, so the reported figures are *estimates*. I also gathered the total number of *Sponsors* the WNBA had from 2019-2024.

### ***Model:***

As my data contains counts, I chose to employ Unordered Poisson Regression of the following form:

$$\log(E[Y_i]) = \beta_0 + \beta_1 X_{\{1i\}} + \beta_2 X_{\{2i\}}$$

Utilizing stepwise regression, the best performing model includes the dependent variable (*Sponsorship Revenue*) and two independent variable (*Game Count*, *Media*). This model produces the lowest AIC and Pseudo R<sup>2</sup>.

### ***Results:***

	Best Performing Model
Intercept	<b>2.89</b> (0.03)
Game Count	<b>0.00</b> (0.00)
Value of Broadcast Media Contracts	<b>0.01</b> (0.00)
AIC	7535.50
BIC	7550.41
Log Likelihood	-3764.75
Deviance	1393.86
Number of Observations	1065

The exponentiated coefficients for *Game Count* and *Media* are as follows: 1.0029 and 1.0150. Thus, for each additional WNBA game that is played, the expected total sponsorship revenue increases by approximately ~0.29%. Alternatively, for each one-unit increase in media worth, the expected total sponsorship revenue increases by approximately ~1.5%. Both results are statistically significant ( $p < 0.05$ ).

### ***Implications:***

The results of this analysis are clear – visibility and scale drive value. I have found that increasing the number of WNBA games played in a season plus enhancing broadcast media visibility are positively associated with higher expected sponsorship revenue. Interestingly, the marginal boost from each additional game is smaller compared to the lift from increased media exposure. Thus, it's not just about playing more games, it's about making sure more people can see them. This has practical implications for league strategy: rather than simply expanding the schedule, focusing on amplifying the reach and perceived value of existing games – through better broadcast deals, strategic scheduling, or media partnerships – may yield greater financial returns.