

‘YOU WON’T BREAK MY SOUL’:

*(OR MY SAVINGS ACCOUNT)

THE BEYCONOMICS OF TICKET BUYING

A DATA-DRIVEN GUIDE TO
NAVIGATING THE SECONDARY MARKET

PRESENTED BY
MERCY EME



- [1] **INTRODUCTION** BRIEF OVERVIEW OF CASE STUDY
- [2] **APPROACH** HOW DATA WAS COLLECTED AND METHODS USED
- [3] **RESULTS** INCLUDES PLOTS, GRAPHS, AND RELEVANT CODE
- [4] **DISCUSSION** IN DEPTH ANALYSIS+ RECOMMENDATIONS
- [5] **LIMITATIONS** SETBACKS+POTENTIAL IMPROVEMENTS
- [6] **CONCLUSION** FINAL THOUGHTS

AMERICA HAS A(DYNAMIC) PROBLEM...

- Concerts, especially In the U.S. are rapidly becoming more and more expensive each year
 - Possible demand due to perceived “FOMO” post-pandemic
 - Rising production and insurance costs,
 - Lack of adequate regulation on ticketing industry → **ticket prices, both at face value and resale, increase.**
- **Major contributor to rise in cost is Ticketmaster’s “Dynamic Pricing” system.**

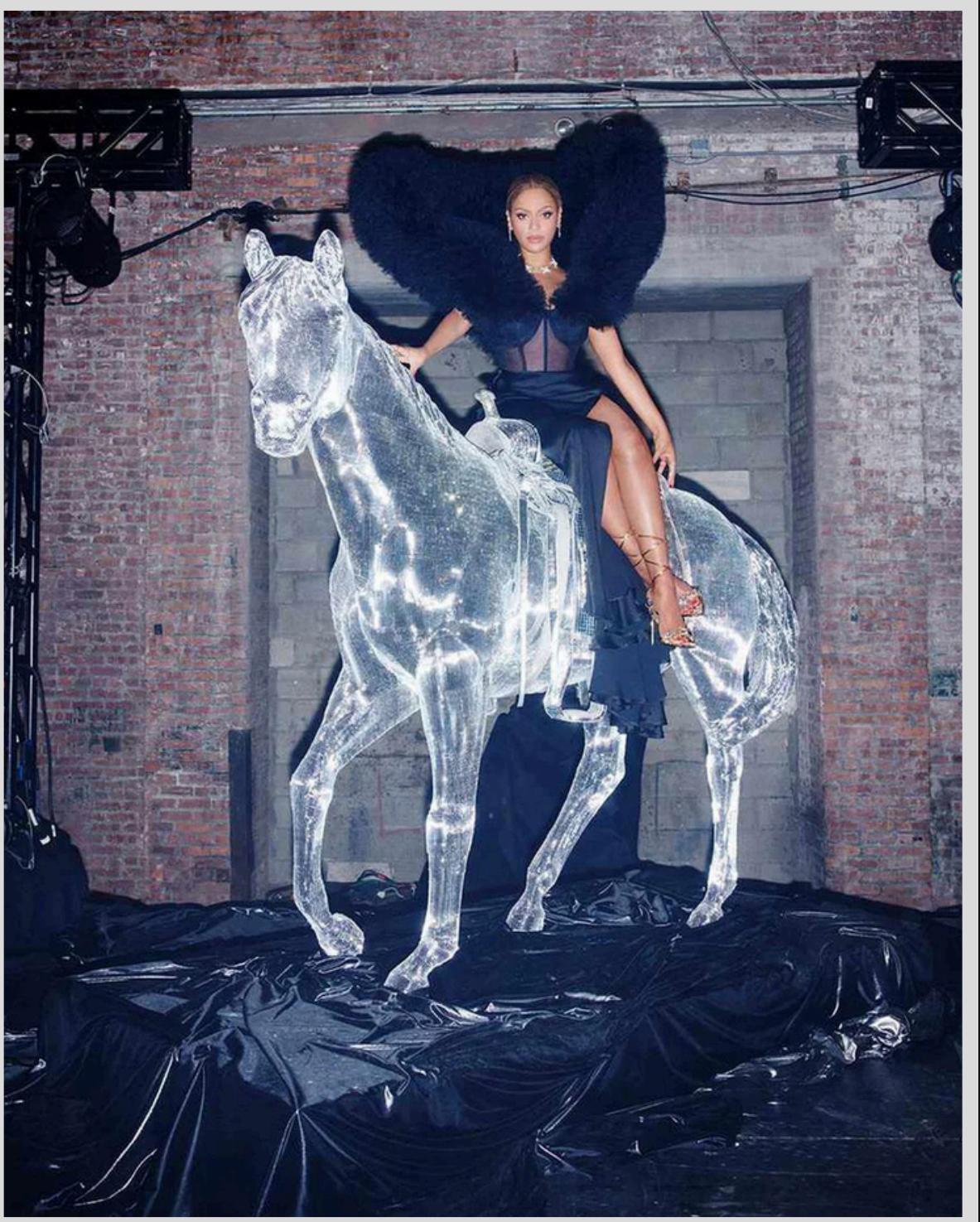


The image consists of three main parts. At the top right is a screenshot of a ticket search interface. It shows a seating chart for a stadium with rows labeled SEC FLOOR A through SEC FLOOR D and numbers 1 through 10. Several seats are highlighted: some are grey (Available), some have a green checkmark (Verified Resale), and some have a red circle with a white checkmark (Verified Resale). To the right of the chart are sections for 'Your Tickets' and 'Event ticket limit: 4 Full ticket info'. Below the chart is a legend: a blue circle for 'Available' and a red circle with a white checkmark for 'Verified Resale'. At the bottom right is a screenshot of the 'ticketmaster' app interface for a 'Concert For Carolina' at Bank of America Stadium on Saturday, October 26, at 5:00 pm. The app shows a queue status: 'YOU ARE NOW IN THE QUEUE ?' with '37903 PEOPLE AHEAD OF YOU'. It also includes a 'Stick To One Device' instruction and a 'QUEUE ID: DF6C47D3-E306-4B33-BCCB-A465245F8FD5'.

WHY BEYONCÉ?

(...BECAUSE IT'S BEYONCÉ, DUH)

- Represents the intersection of **superstar status, high consumer expectations, and modern ticketing practices.**
- In response to the Eras Tour ticketing controversy, Ticketmaster introduced stricter verification and a staggered, lottery-based Verified Fan system for Beyoncé's Renaissance World Tour, **it would be interesting to also see whether these reforms had any impact on the secondhand market during the duration of Renaissance Tour.**
- With all things considered, **is there an optimal time to buy Beyoncé tickets for future shows in order to minimize the price paid?** This case study attempts to answer this question using detailed multi-city data from her 2023 tour.



KEY VARIABLES:



- **EventDate:** The specific show date.
- **City:** The specific city.
- **Zone:** The broader seating area (ex. Upper Terrace).
- **Section:** Specific seating area within a zone (ex. 225C).
- **ActualPrice:** The ticket's asking price in USD.
- **PriceDate:** When the ticket was listed or the price was recorded.
- **Other Features:** Quantity available (Qty), Row, and any special zone designations (ex. "Club Renaissance").

METHODS & DATA

The data compiled for this study was sourced from [SeatData.io](#), an archive site that tracks third-party resale and primary listings.

For Beyoncé's Renaissance World Tour, only third party resale data was available.

The dataset covers dozens of her tour dates across North America, spanning various venues and cities.

APPROACH

DERIVED VARIABLES:



*Filtered out incomplete or ambiguous listings.

METHODS & DATA

- **DaysBeforeEventDate:** Calculated as the number of days between the listing date and the event date.
- ***Standardized Section Zones/Groups:** Mapped detailed section names into broader categories for comparison across venues.
- **Seat Quality Score:** Assigned based on the typical (median) price for each section group (process explained on next slide).
- **ExpectedPrice:** Predicted typical ticket prices for each section and city, accounting for local pricing difference to estimate fair market value of each ticket

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APPROACH

METHODS & DATA

City	EventDate	PriceDate	PriceTime	DaysBeforeEventDate	Zone	Section	R...	Qty	StandardZone	Section_Group	Section_Num	ActualPrice	Lowest_Price
Kansas City	2023-10-01	2023-09-27	4:52 PM	4	Upper Terrace	615	19	2	Upper Bowl	600s	615	413.1	63.00
Kansas City	2023-10-01	2023-09-27	12:31 PM	4	Club Renaissance	Club Renaissance	1	1	VIP Floor	Club Renaissance	N/A	2700.0	1138.86
Kansas City	2023-10-01	2023-09-27	12:31 PM	4	Upper Terrace	617	31	3	Upper Bowl	600s	617	540.0	63.00
Kansas City	2023-10-01	2023-09-27	9:00 AM	4	Upper Terrace	615	19	2	Upper Bowl	600s	615	413.1	63.00
Kansas City	2023-10-01	2023-09-27	12:39 AM	4	Field	E	19	1	Floor	Floor	N/A	1620.0	505.44
Kansas City	2023-10-01	2023-09-27	12:39 AM	4	Field	E	19	1	Floor	Floor	N/A	1080.0	505.44
Kansas City	2023-10-01	2023-09-26	7:39 PM	5	Field	N	21	1	Floor	Floor	N/A	1440.0	505.44
Kansas City	2023-10-01	2023-09-26	2:59 PM	5	Field	F	14	1	Floor	Floor	N/A	855.0	505.44
Kansas City	2023-10-01	2023-09-26	2:59 PM	5	Upper Loge	310	11	2	Upper Bowl	300s	310	899.1	189.00
Kansas City	2023-10-01	2023-09-26	11:00 AM	5	Upper Terrace	639	29	1	Upper Bowl	600s	639	387.0	63.00

Section	K...	Qty	StandardZone	Section_Group	Section_Num	ActualPrice	Lowest_Price	ExpectedPrice_Reg	Seat_Score_Reg	Seat_Quality_Score	Floor_Deal_Score
615	19	2	Upper Bowl	600s	615	413.1	63.00	178.03	0	0.3	
Club Renaissance		1	VIP Floor	Club Renaissance	N/A	2700.0	1138.86	1415.70	0	0.8	
617	31	3	Upper Bowl	600s	617	540.0	63.00	178.03	0	0.3	
615	19	2	Upper Bowl	600s	615	413.1	63.00	178.03	0	0.3	
E	19	1	Floor	Floor	N/A	1620.0	505.44	833.96	0	0.7	
E	19	1	Floor	Floor	N/A	1080.0	505.44	833.96	0	0.7	
N	21	1	Floor	Floor	N/A	1440.0	505.44	833.96	0	0.7	
F	14	1	Floor	Floor	N/A	855.0	505.44	833.96	0	0.7	
310	11	2	Upper Bowl	300s	310	899.1	189.00	273.12	0	0.2	
639	29	1	Upper Bowl	600s	639	387.0	63.00	178.03	0	0.3	

CODE+DF
SNIPPET:

- # New columns for dataframe (df) - csv file
- df <- df %>%
• mutate(
• StandardZone = mapply(standard_zone, Zone, Section),
• Section_Group = sapply(Section, section_group),
• Section_Group = ifelse(StandardZone == "Floor", "Floor",
Section_Group),
• Section_Num = extract_section_num(Section),
• PriceDate = as.Date(PriceDate, format = "%m-%d-%y"),
• EventDate = as.Date(EventDate, format = "%Y-%m-%d"),
• DaysBeforeEventDate = as.numeric(EventDate - PriceDate)
•) %>%
• filter(Section_Group != "Other") %>%
• mutate(row_id = row_number()) %>%
• rename(ActualPrice = Price)

*Filtered out incomplete or ambiguous listings.



ON AIR

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DIVA DISCOUNTS:

DEAL SCORES: WHAT THEY MEASURE AND
HOW THEY ARE CALCULATED

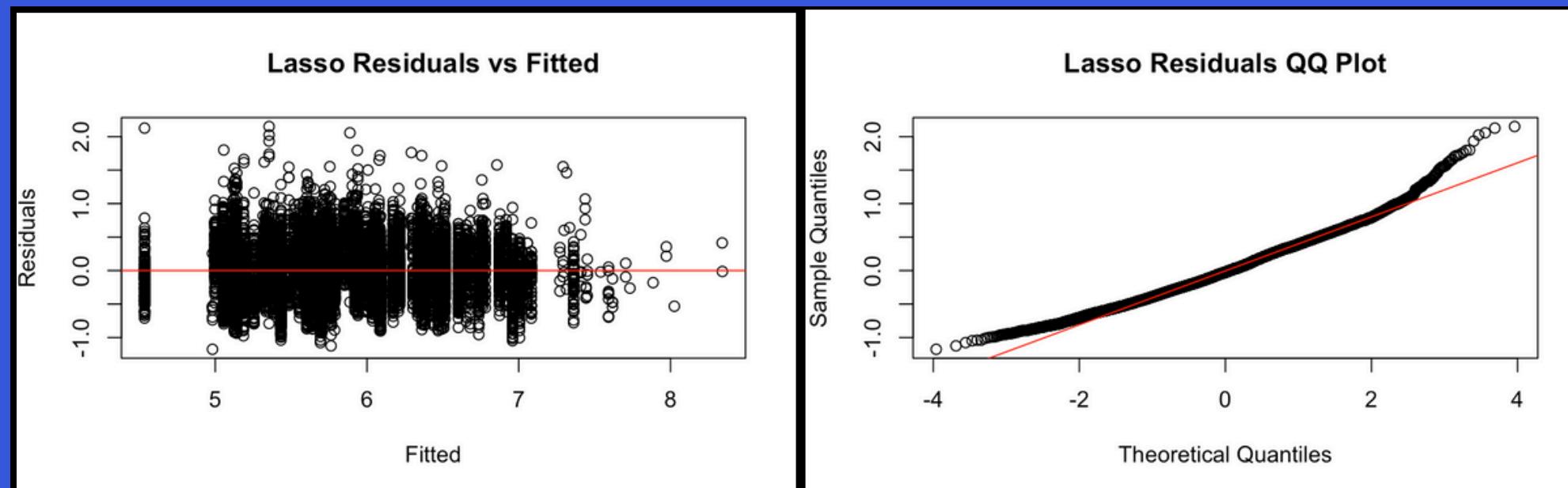
Modeling Approach: Regression

- To estimate fair market value, I compared three regression models for best fit (OLS, Ridge, and LASSO) on log-transformed ticket prices, using section group and city as predictors.
- The data was split 80/20 into training and test sets. Dummy variables were created for all predictors.



DIVA DISCOUNTS:

DEAL SCORES: WHAT THEY MEASURE AND HOW THEY ARE CALCULATED



LASSO Regression as Best Fit

- Model performance was evaluated using RMSE and R^2 .
- LASSO regression was selected as the best fit model. The RMSE and R^2 were the lowest and highest, respectively, in comparison to the other two models (see table).
- The final model's predicted log prices were exponentiated and clamped to a \$10 minimum, which then created the **ExpectedPrice** variable.

Model	R^2_{log}	RMSE _{log}	RMSE _{original}
OLS	0.682	0.390	231.471
Ridge	0.679	0.392	233.203
Lasso	0.682	0.390	231.751

Table 1: Comparison of regression models.

DIVA DISCOUNTS:

DEAL SCORES: WHAT THEY MEASURE AND HOW THEY ARE CALCULATED

Deal_Score:

- How much of a bargain was this ticket?
 - Compares price paid (ActualPrice) to the typical price for that section, city, and event (ExpectedPrice).
 - High score = paid much less than average (big bargain).
 - $Deal_Score = (ExpectedPrice - ActualPrice) / ExpectedPrice$

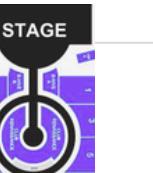
Seat_Quality_Score:

- How good is this section? - see next slide(s) for greater detail/reference

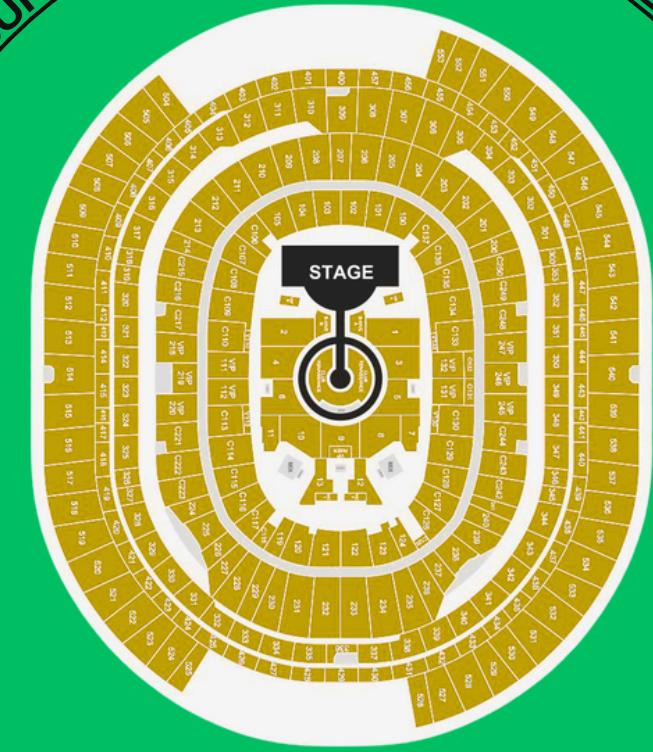
Final_Deal_Score:

- How great is this ticket overall?
 - Combines both the bargain and seat quality using the geometric mean.
 - High score = ticket is both cheap and in a great section.
 - $Final_Deal_Score = \sqrt{Deal_Score_Reg * Seat_Quality_Score}$



Section Group	Location	Experience	Price
VIP Pure Honey Risers	Raised VIP platforms on the main stage	Exclusive fan interactions with artist Best views and perks with seats provided	\$\$\$\$\$ 
B-Hive	VIP Pit located at very front of the main stage (two sections; one on each side of the main stage)	Intimate, special fan zone for the enthusiasts Standing-room only, with a private bar and/or amenities	\$\$\$\$ 
Club Renaissance	VIP Pit located between main stage	Fans who want to be as close to the artist as possible, with a special “club-like” party experience Standing-room only, with a private bar and/or amenities	\$\$\$\$ 
Floor	Main flat area in front of the stage (not VIP)	Still close enough, but without VIP perks Seats provided (US Only)	\$\$\$\$ 
Lower Bowl (“100s”)	1st tier of permanent seats surrounding the floor	Good view, comfortable seat Less likely to have obstructed view compared to floor due to raked seating arrangements	\$\$\$ 
Club (“200s”)	2nd tier, sometimes with extra amenities (buffet, premium quality seats, etc.)	Slightly further, though can be considered more comfortable.	\$\$ 
*Upper Bowl (“300s+”) *Some venues have sections that go up to 700	Highest, farthest seats in the arena; budget-friendly	Widest view. Great for seeing entire production or just to enjoy the music/atmosphere	\$ 

MEASURING SEAT COMFORT AND EXPERIENCE



UPPER BOWL

COZY IN THE CROWD*

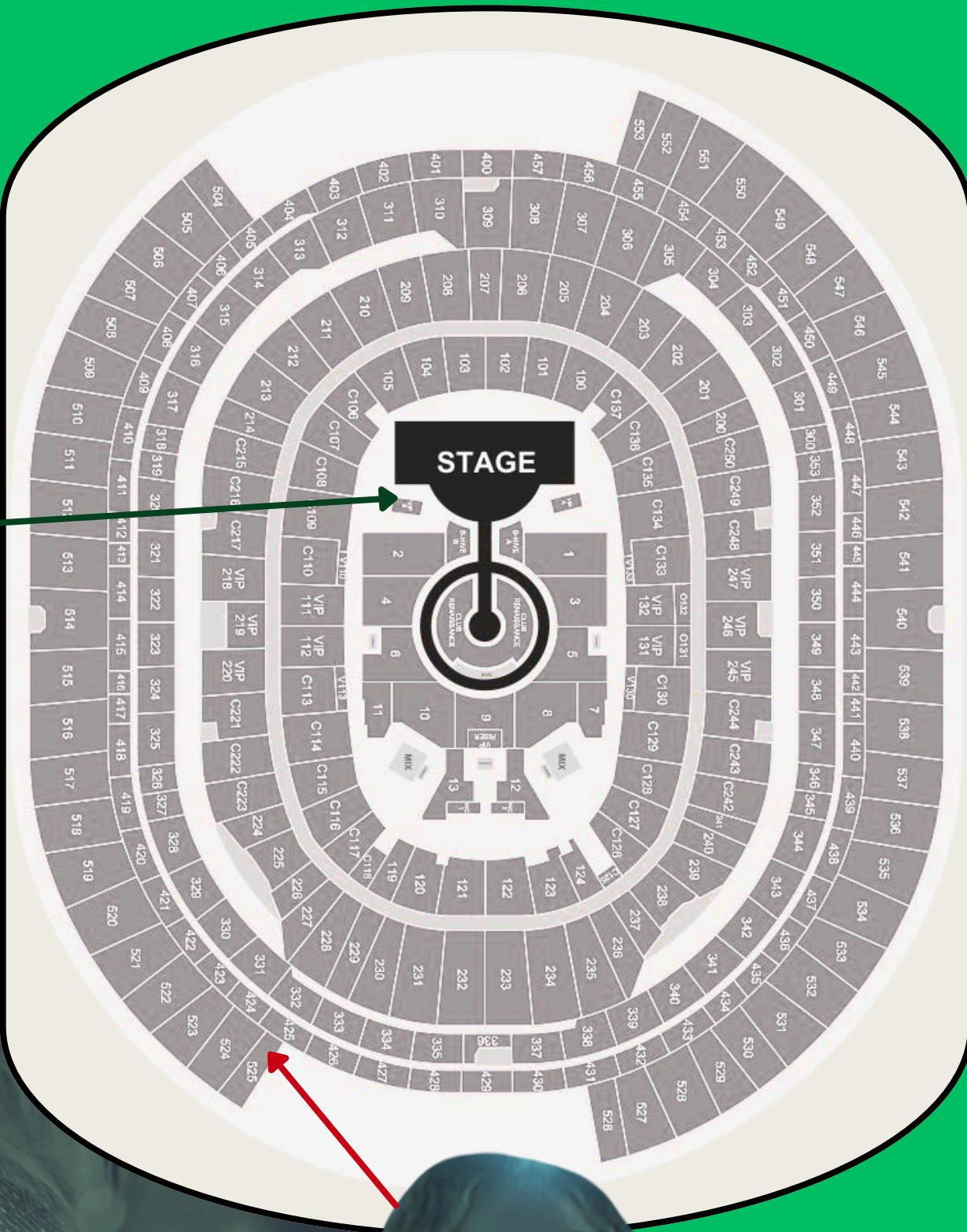
(Sections Explained)

***WHY THIS APPROACH?**

ADJUSTS FOR VENUE DIFFERENCES: PRICES ARE COMPARED FAIRLY ACROSS CITIES.

DATA-DRIVEN: BASED ON REAL MARKET DATA, NOT ASSUMPTIONS. (THOUGH STILL NOT 100% OBJECTIVE)

FAIR DEAL SCORES: QUALITY SCORE ENSURES DEAL RATINGS REFLECT BOTH PRICE AND SEAT DESIRABILITY



STEP-BY-STEP SUMMARY OF INFORMATION STANDARDIZATION:

SEATS WERE GROUPED INTO STANDARDIZED SECTIONS (E.G., FLOOR, LOWER BOWL, CLUB, ETC.) USING SECTION LABELS AND CODES.

EXPECTED PRICE MODELING:

A LASSO REGRESSION MODEL (WITH LOG-TRANSFORMED PRICES) PREDICTED TYPICAL TICKET PRICES FOR EACH SECTION AND CITY, ACCOUNTING FOR LOCAL PRICING DIFFERENCES.

SECTION MEDIAN PRICE:

FOR EACH SECTION GROUP, THE MEDIAN PREDICTED PRICE WAS CALCULATED TO REPRESENT THE “USUAL” COST.

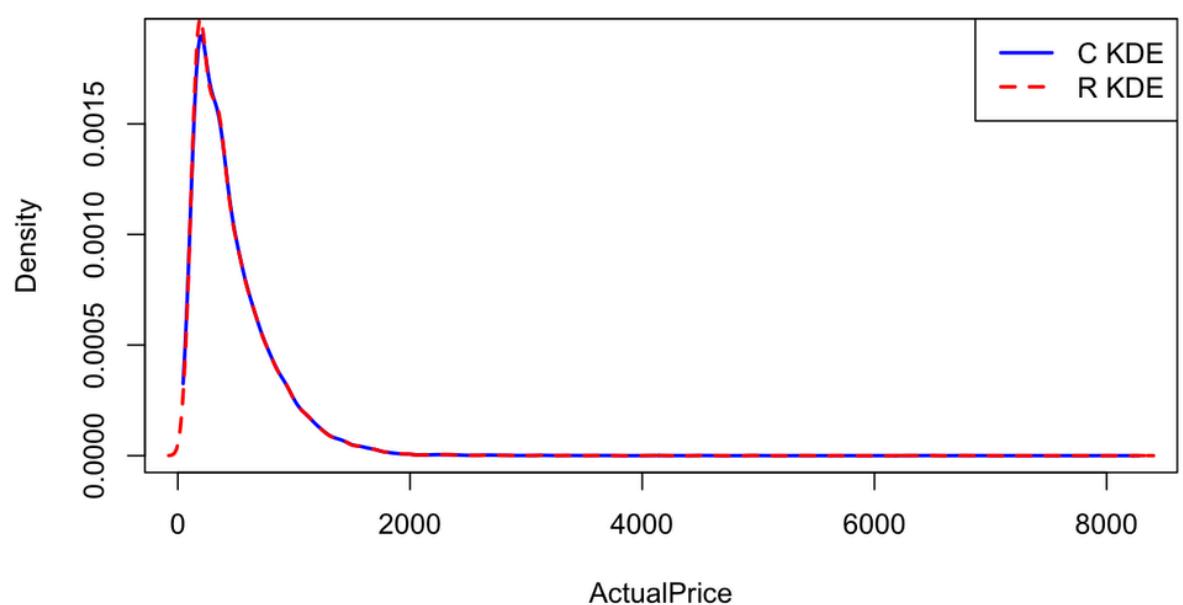
SEAT QUALITY SCORE:

SECTIONS WERE RANKED BY THEIR MEDIAN PRICE. THE SEAT QUALITY SCORE IS EACH SECTION'S PERCENTILE RANK (FROM 0.0-1.0).

COZY IN THE CROWD*

HIGHER SCORES = BETTER, MORE DESIRABLE SECTIONS
LOWER SCORES = WORSE, LESS APPEALING SECTIONS

Univariate KDE: C (blue) vs R (red)



Most tickets sold at low prices; right-skewed distribution.
Few tickets sold at very high prices (outliers).

- Prices not normally distributed; heavy upper tail.

There were two spikes: many buyers purchase very early (6+ months out) or quite late (last 1-2 weeks).

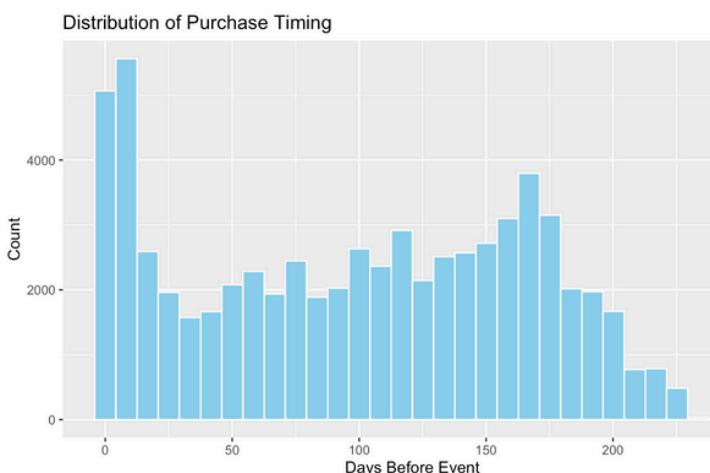
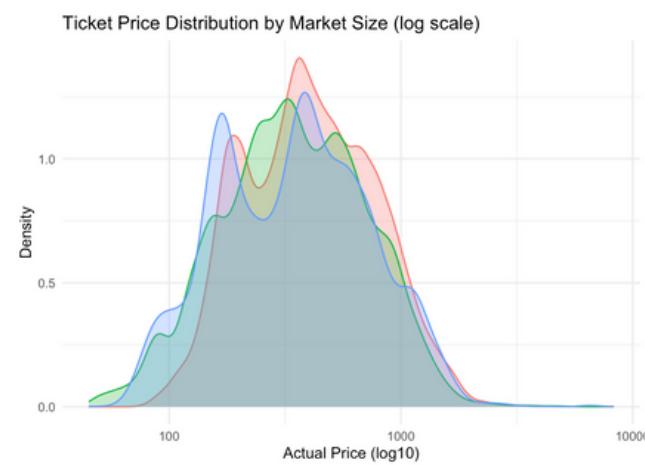
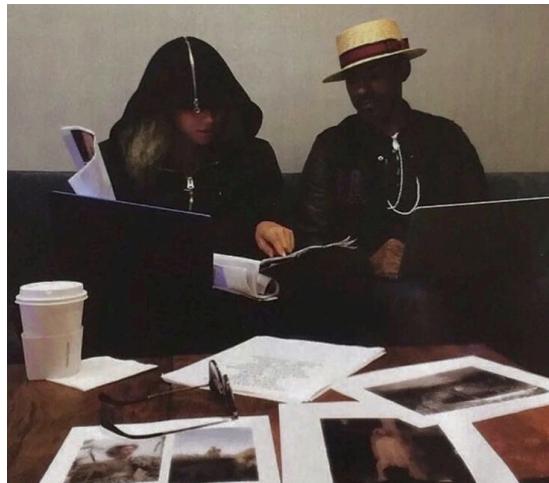
- Fewer buyers purchased in the "middle window" (2-4 months before).

Market Size Comparison

- Prices are higher in big markets, but every market size has a long right tail (some very expensive tickets).
- The majority of purchases cluster at moderate prices (log scale helps visualize this).

Exploratory Data Analysis

DISTRIBUTION

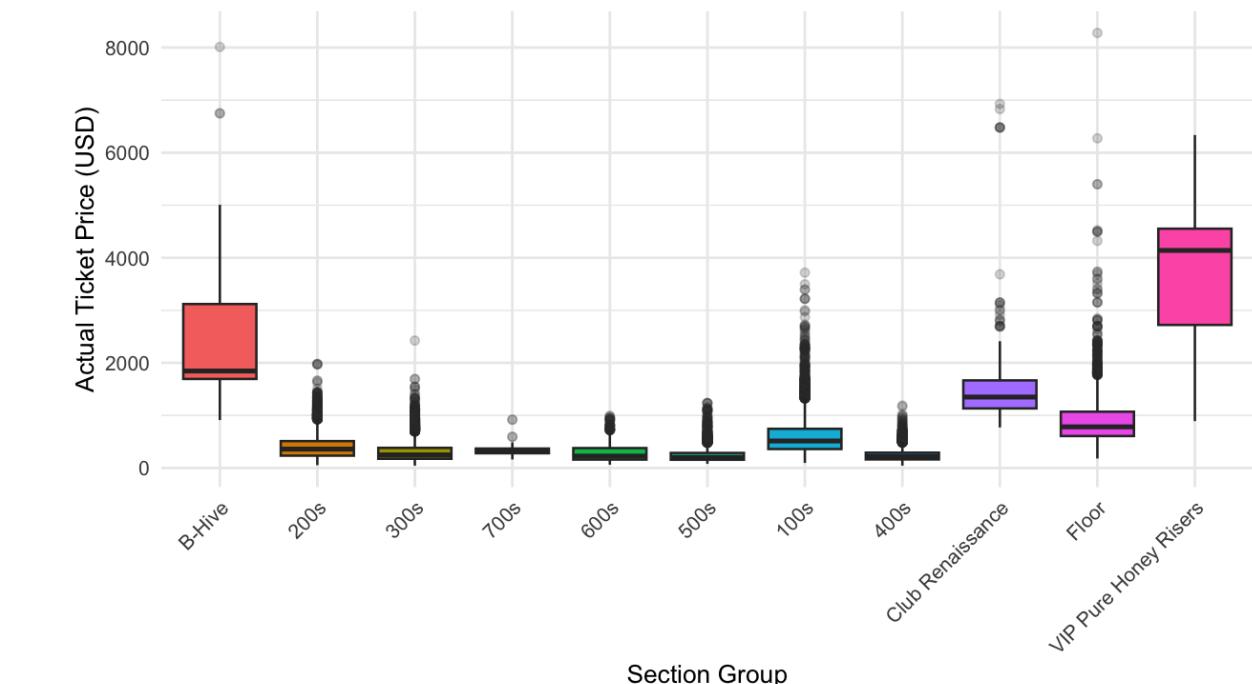


Market size matters for price, but not as much for good deals: While big cities have pricier tickets on average, the **probability of finding a "good deal"** (top 20% of final deal scores) is quite similar across market sizes.

Section group is the main driver of ticket price and deal quality.

- Standard sections (100s-700s):
 - Prices are more consistent, but some outliers (>\$2,000) exist.
 - Occasionally, strong deals are found, but they are rare.
- Premium/VIP sections (Floor, Club Renaissance, B-Hive):
 - Prices are much higher and more variable, meaning there are potential bargains if you time your purchase right.
 - These sections show both the highest prices and the greatest spread in deal quality.
- Some exceptional bargains ("red dot" outliers) occur even in premium sections.

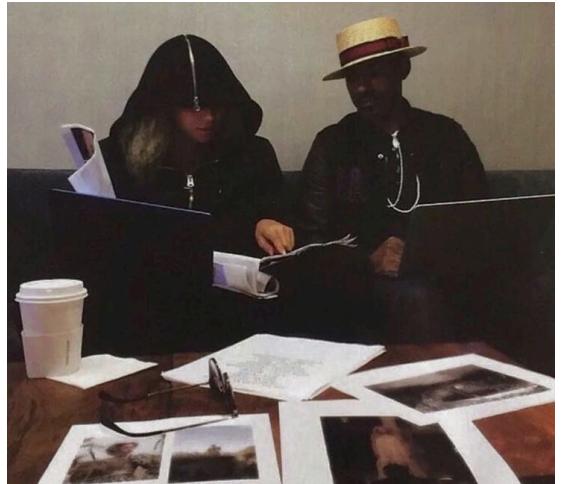
Ticket Price Distribution by Section Group



Every section has rare outliers: very high prices (overpays) or exceptional deals (underpays).

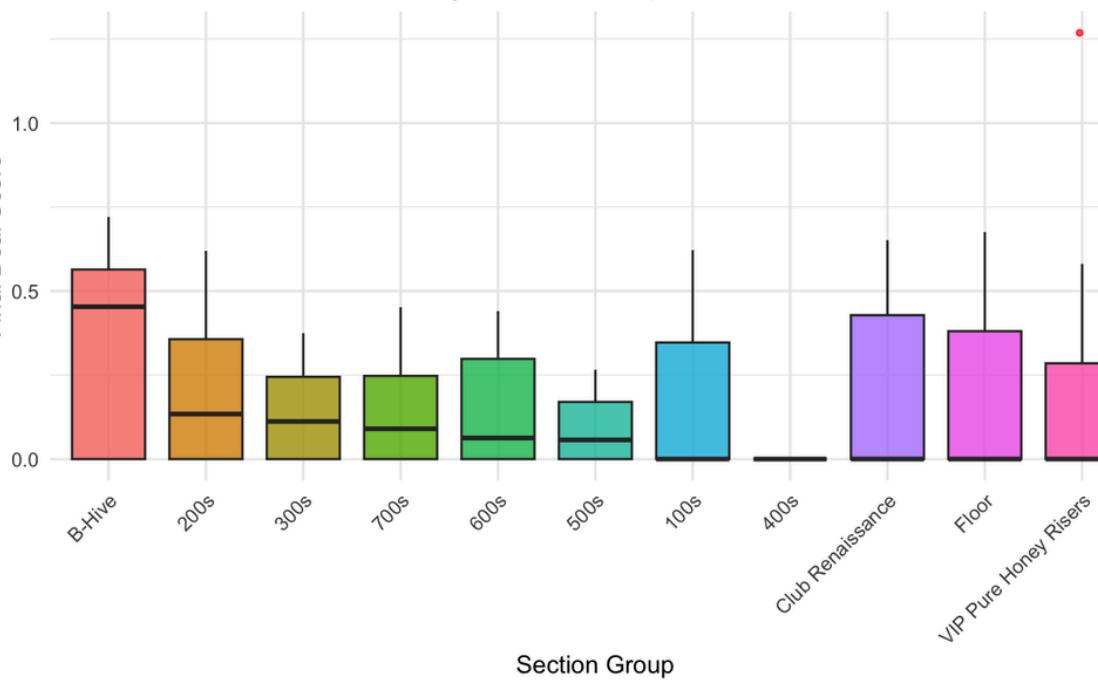
Exploratory Data Analysis

BOXPLOTS



EDA

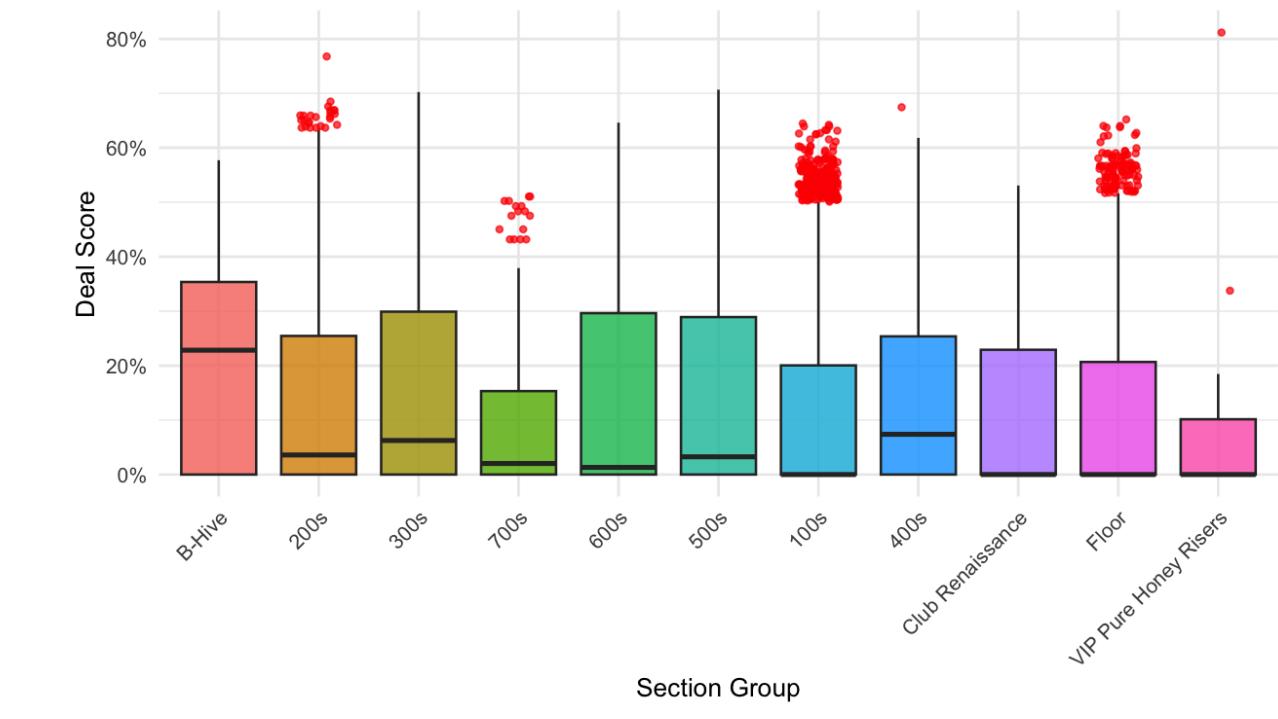
Final Deal Score Distribution by Section Group



Final_Deal_Score

Summary Stats

Deal Score Distribution by Section



Deal_Score_Reg

Ticket Price & Deal Score Distribution by Section

- Standard seating sections (100s-700s): Median \$200-\$513
- Floor: Median \$782
- Club Renaissance: Median \$1,350
- B-Hive: Median \$1,845
- Most buyers paid under \$1,000 except in premium sections
- Outliers (very high prices) exist in every section

Price Changes as Event Approaches

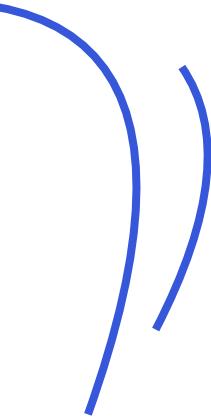
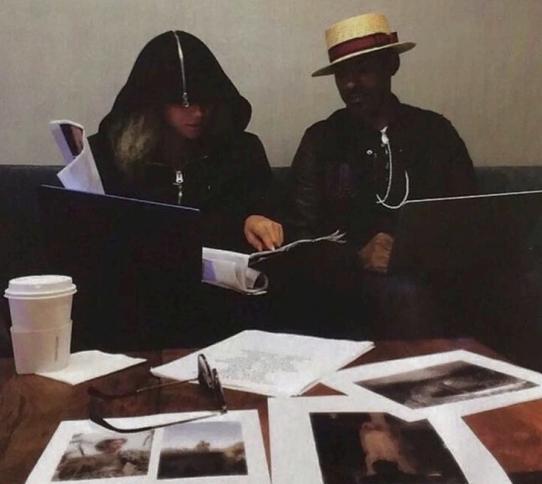
Best chance for a top deal: 100-175 days before event date.

- Deals start very high, but dip almost immediately, then rise again close to showtime (**U-shaped pattern**).
- The shaded region of the smooth effect GAM model indicates the **95% CI**, highlighting periods where buyers are more or less likely to find good deals.

There is a more stable “**sweet spot**” for purchase timing (**roughly 75-200 days before the event date**): Waiting too long or buying too early can both mean missing the best deals.

Key Visuals

PROBABILITY (GAM)



Regression Output



Family: binomial
Link function: logit

Formula:
GoodDeal ~ MarketSize + Section_Group + s(DaysBeforeEventDate)

Parametric coefficients:

	Estimate	Std. Error	z value	Pr(> z)
(Intercept)	-7.632e-01	1.864e-02	-40.935	< 2e-16 ***
MarketSizeMedium	1.284e-01	2.355e-02	5.452	4.97e-08 ***
MarketSizeSmall	-7.928e-02	3.259e-02	-2.433	0.014993 *
Section_Group200s	-1.161e-01	2.686e-02	-4.323	1.54e-05 ***
Section_Group300s	-3.743e+00	8.160e-02	-45.868	< 2e-16 ***
Section_Group400s	-3.496e+01	8.494e+05	0.000	0.999967
Section_Group500s	-3.479e+01	8.913e+05	0.000	0.999969
Section_Group600s	-8.056e-01	5.526e-02	-14.579	< 2e-16 ***
Section_Group700s	-1.240e+00	2.365e-01	-5.244	1.57e-07 ***
Section_GroupB-Hive	1.064e+00	2.759e-01	3.857	0.000115 ***
Section_GroupClub Renaissance	6.620e-02	1.272e-01	0.520	0.602767
Section_GroupFloor	1.211e-01	2.732e-02	4.433	9.29e-06 ***
Section_GroupVIP Pure Honey Risers	1.537e-01	5.320e-01	0.289	0.772647

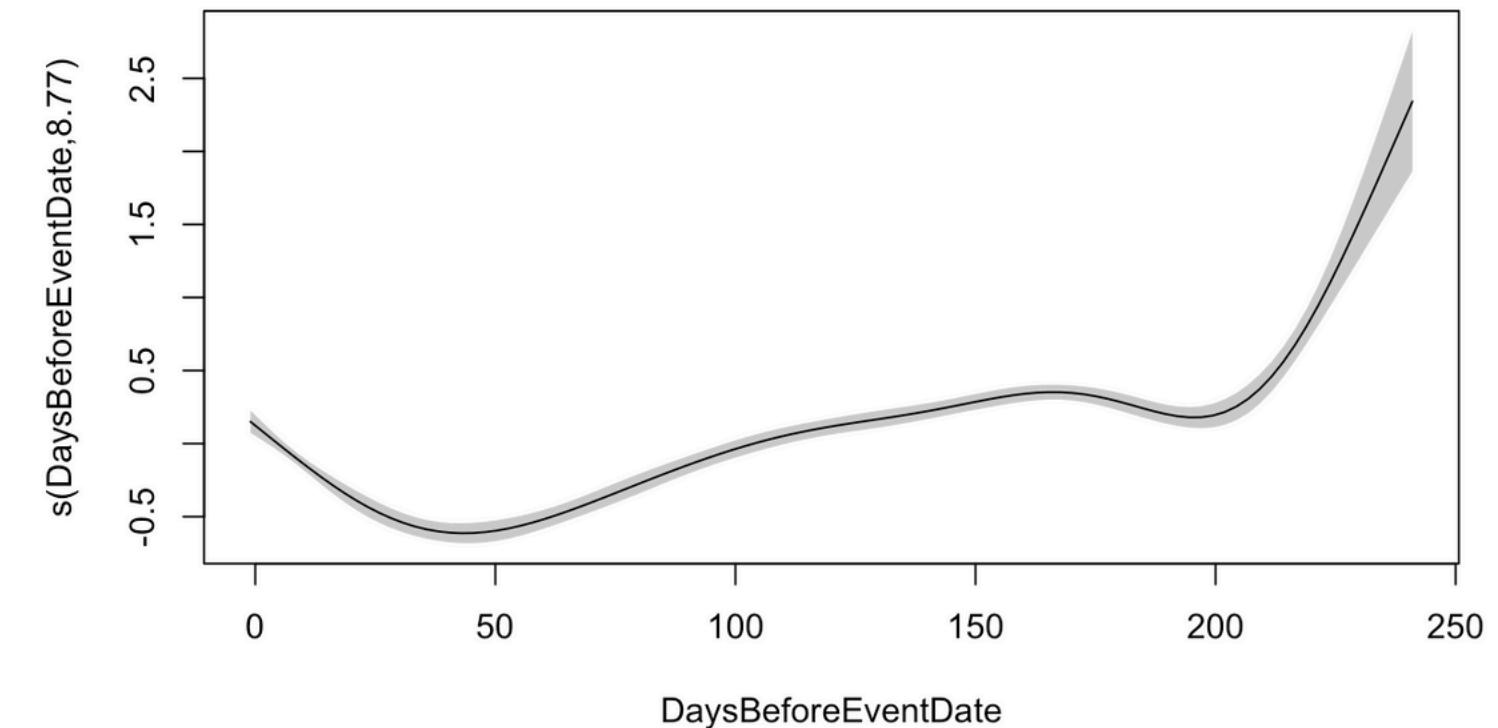
Signif. codes: 0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Approximate significance of smooth terms:
edf Ref.df Chi.sq p-value
s(DaysBeforeEventDate) 8.774 8.981 915.3 <2e-16 ***

Signif. codes: 0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

R-sq.(adj) = 0.162 Deviance explained = 21.2%
UBRE = -0.21066 Scale est. = 1 n = 66704

Smooth Effect of Days Before Event on Good Deal Probability



Results

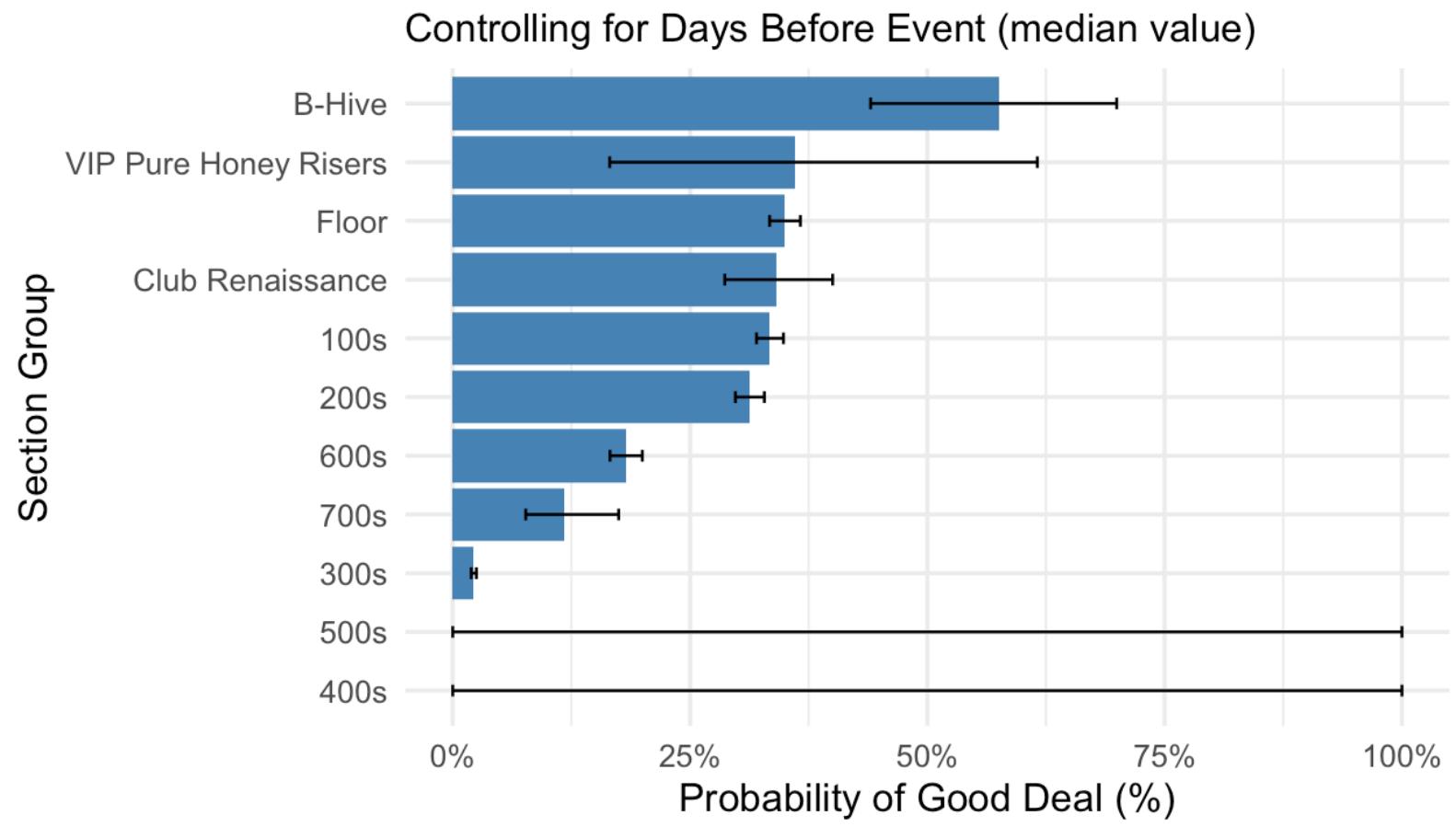
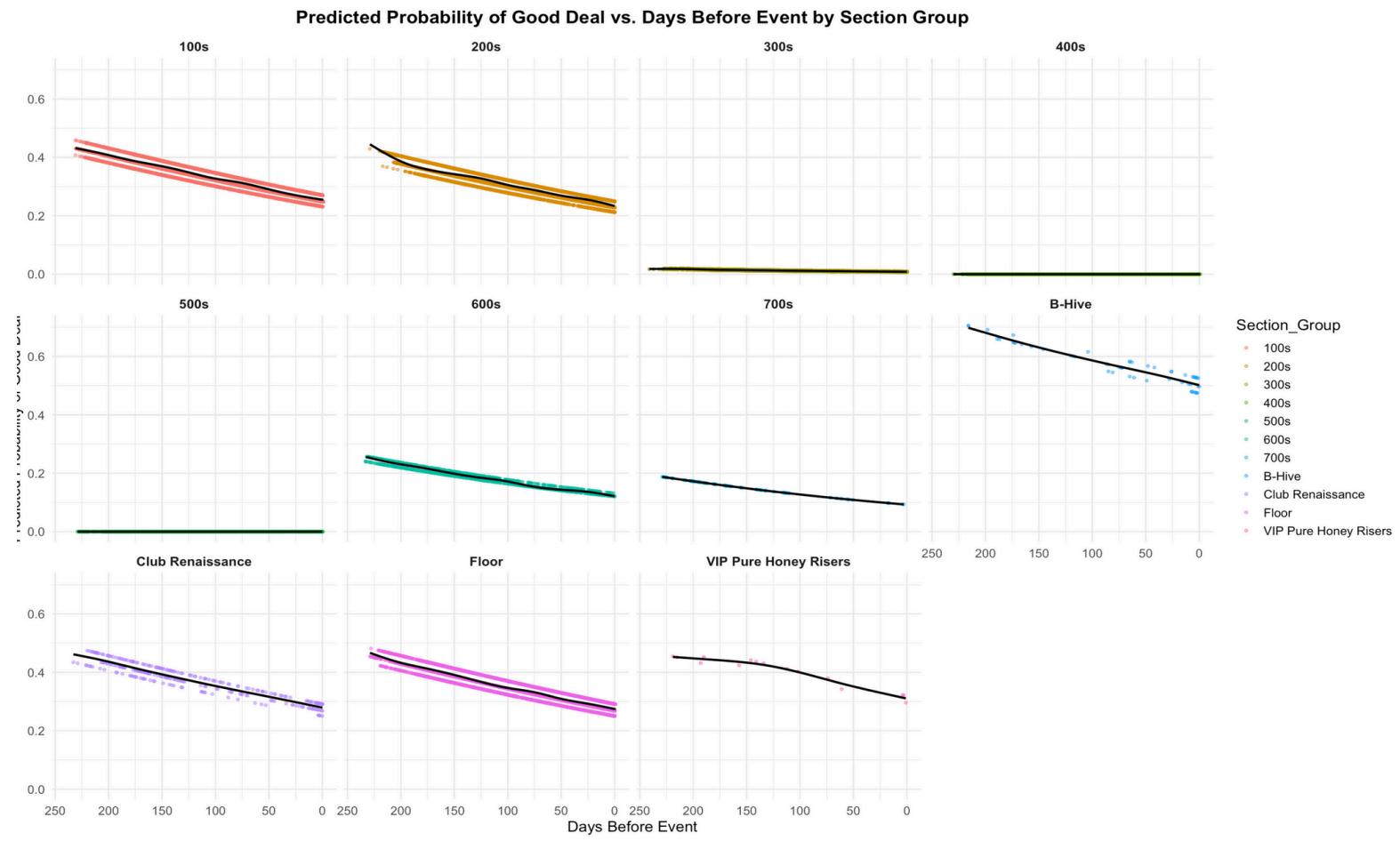
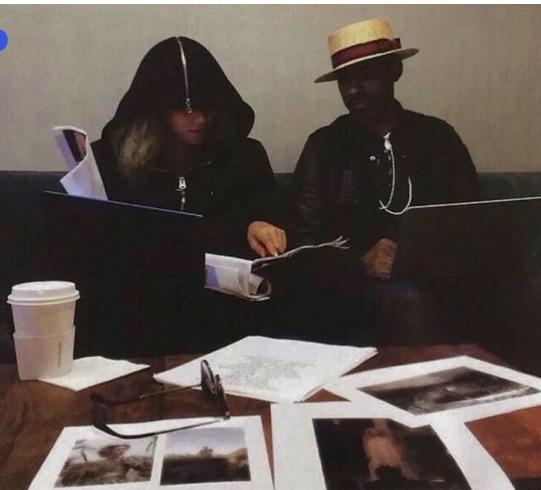
Across nearly all sections, the probability of getting a good deal decreases as the event approaches. The effect is especially sharp for premium sections.

Certain seat sections stand out: for example, B-Hive and Floor sections are significantly more likely to offer good deals, even after adjusting for timing and market size.

In contrast, being in the 300s, 400s, 600s, or 700s sections is associated with a much lower chance of a good deal, all else equal. The model explains about **21% of the deviance in deal probability (adjusted R² = 0.16)**, which is substantial given the complexity and volatility of ticket resale markets.

Key Visuals

PROBABILITY (CONT).



Results



DISCUSSION

Timing and seat section are more important than market size, even if they are considering traveling to smaller markets in search of better deals.

- Both **early buyers (6+ months out)** and **last-minute shoppers (final 1-2 weeks)** may enjoy increased chances of finding bargains, but the **"middle window" (roughly 2-4 months before the event)** also could offer a particularly high and stable probability and less competition to snag good deals, with the likelihood gradually declining as the concert date approaches.
 - Premium sections like B-Hive and VIP Pure Honey Risers appear to offer the best opportunities for strong deals (**up to 54% probability in B-Hive if purchased early**), while Club (200s) and Lower Bowl (100s) provide a balanced combination of value and view, **yielding deal probabilities of 34-38% when bought several months in advance**.

Across all sections, tickets listed near the section's lowest observed price are most likely to be top-value deals, so buyers should act quickly when such listings appear.

**SO THERE IS A
PERFECT TIME TO
BUY?**

Not quite.

There is no perfect time, just the best time.

But if you still luck out, stalking Ticketmaster 24/7 never hurts too.

LIMITATIONS



MODELS, CODE, AND THRESHOLDS DEVELOPED HERE MAY REQUIRE REVISION FOR FUTURE EVENTS, AS TICKETING MARKETS, DATA SOURCES, AND BUYER BEHAVIOR EVOLVE.

MARKET VOLATILITY, LOCAL DEMAND CHANGES, AND OVERALL SHIFTS IN PUBLIC SENTIMENT OF AN ARTIST COULD ALSO SIGNIFICANTLY ALTER TICKET PRICING PATTERNS AND DEAL OPPORTUNITIES.

Real-world events (artist announcements, tour changes, local news) can have big impacts on prices, which aren't captured here.

Example: Cowboy Carter World Tour — Market Saturation or Scarcity
If an artist performs fewer shows in a region in the future, ticket supply and demand, and thus prices, will change in ways my current analysis cannot anticipate.

**THANK
YOU**

PRESENTED BY
MERCY EME