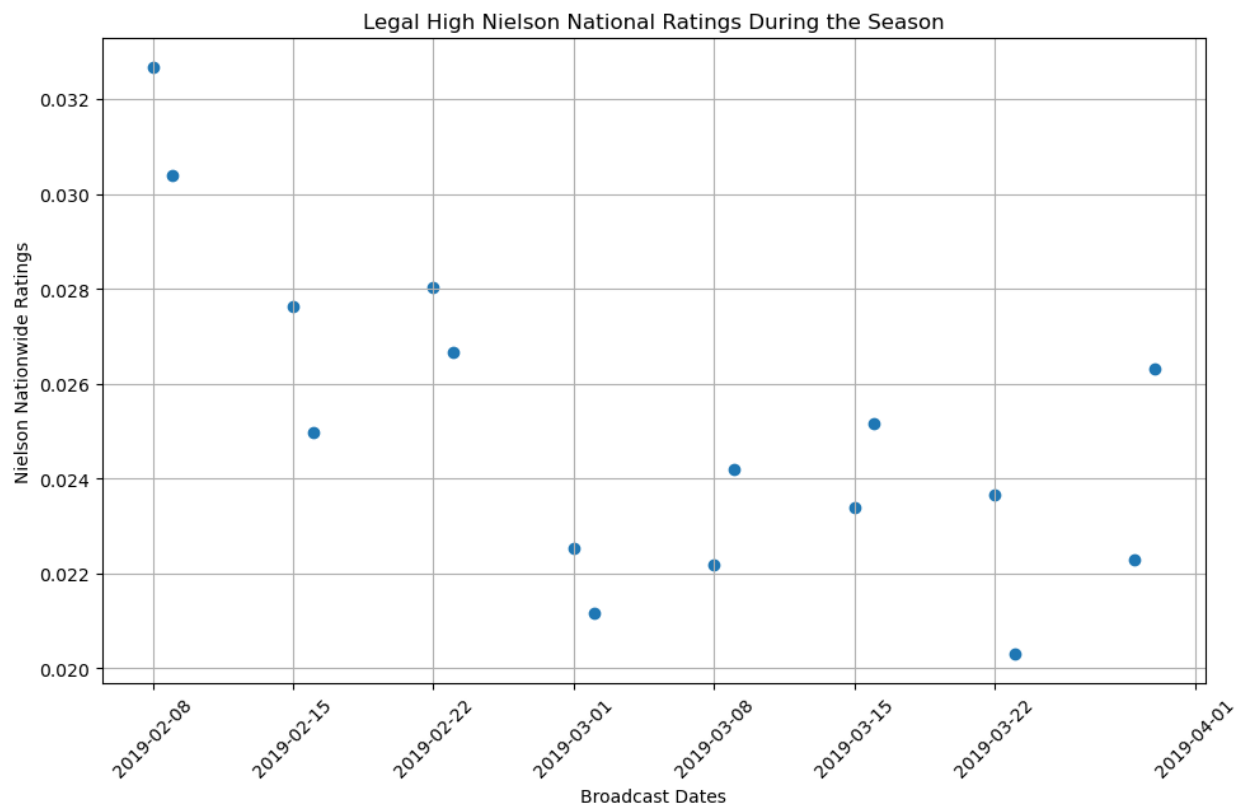


Introduction

Our exploration into the Korean drama series "Legal High" revealed a noticeable decline in episode quality, particularly starting from episode 5. To support this observation, we conducted an in-depth analysis of the series using Nielsen Nationwide Ratings data, which we obtained from the show's Wikipedia page.¹ Nielsen Nationwide Ratings are collected from a sample of households, representing the proportion of the sample households that watched the live broadcast. In our study, we consider viewership as a proxy variable for the show's quality, as increased quality is expected to attract more viewers.

Data Analysis



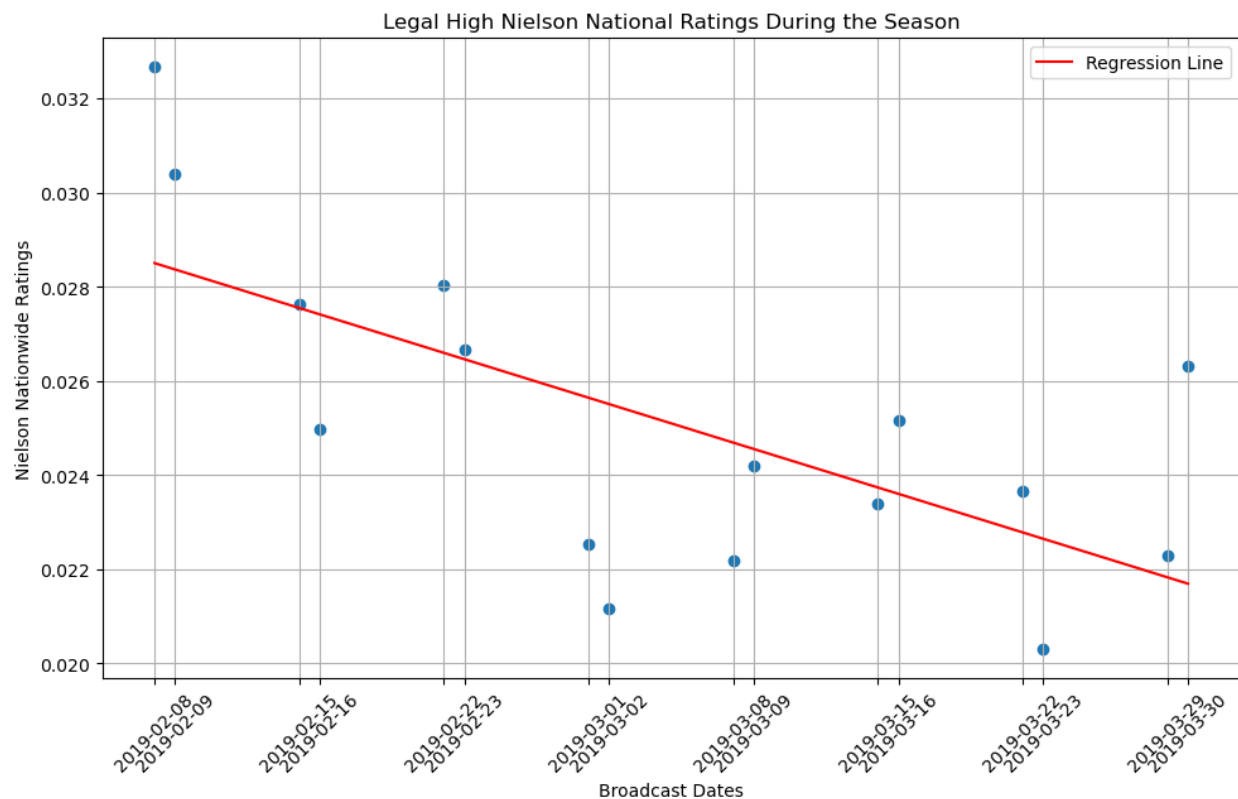
After meticulous preprocessing and data cleaning, we generated visualizations based on broadcast dates to identify any potential correlation between episode ratings and their temporal proximity to preceding episodes.²

¹ [https://en.wikipedia.org/wiki/Legal_High_\(South_Korean_TV_series\)](https://en.wikipedia.org/wiki/Legal_High_(South_Korean_TV_series))

² See Appendix for data table of episode numbers, broadcast dates, and Nielsen Nationwide Ratings

In our visual representations, we observed a consistent decline in Nielsen Nationwide Ratings as we progressed through each episode, indicated by the data points. The first six episodes received high ratings compared to the subsequent ten, which had lower ratings. To understand the correlation between these variables, we conducted regression analysis. Notably, the lowest rating occurred in the fourteenth episode. The series began with a Nielsen Nationwide Rating of 0.03266 in the first episode and concluded with a rating of 0.02632.

Regression Analysis



slope: -0.00013615776699029124
 intercept: 2.470487870145631
 R: -0.6677577645327699
 R²: 0.4459004320938022
 p-value: 0.004702578223321684
 std err: 4.056517572131609e-05

A rigorous regression analysis was conducted to delve deeper into the relationship between the broadcast date and Nielsen Nationwide Ratings. Our regression model used Nielsen Nationwide Ratings as the dependent variable, and the date broadcasted as the independent variable. We measured the independent variable by how many days after the first episode was

broadcasted. The model's efficacy using key statistical metrics, including R, R^2 , the p-value, and the standard error.

These statistics reveal a moderate, negative linear relationship between the variables, explaining approximately 44.59% of the variability in Nielsen Nationwide Ratings. While our model possesses some predictive power, it does not entirely elucidate the variance in Nielsen Nationwide Ratings.

The low p-value provides compelling evidence of a statistically significant linear relationship between the broadcast date and Nielsen Nationwide Ratings. The small standard error strengthens the reliability of our slope coefficient estimate.

Interpreting the Model

The coefficient of -0.00013615776699029124 suggests that, on average, for each day the broadcast date increases, Nielsen Nationwide Ratings decrease by approximately 0.000136. In practical terms, this equates to a reduction of 48,742 households, or roughly 7,311 fewer daily viewers. Over the course of an entire season, this corresponds to 116,981 fewer viewers, assuming an average of 2.4 individuals per household in South Korea. By the sixteenth episode, the regression model estimates that "Legal High" should have 1,639,434.24 viewers or 683,097.6 households. The percent change is negligible at -6.67% for both households and population.

	Nielsen Nationwide Rating	Households in South Korea (22.4 million)	Population (on average 2.4 people per household)
Daily Change on Average	-0.000136	-3,046.4	-7311.36
Weekly Change on Average	-0.00091	-21324.8	-51179.52
One Season Change on Average	-0.002176	-48742.4	-116981.76

Conclusion

Our analysis confirms a significant decline in "Legal High" ratings as the series progresses, as evidenced by the low p-value. While the 6.67% drop in viewership from

1,756,416 to 1,639,434.24 may appear negligible in the larger context, our findings provide valuable insights into the series' performance.

Further research is needed to compare this trend with other Korean dramas, especially regarding their initial and average viewership. Additionally, examining user ratings of each episode could provide a more direct measure of quality compared to Nielsen Nationwide Ratings, which primarily indicate viewership. Such insights would help answer the question of whether the show's quality truly declined.

Appendix

Episode Number	Broadcast Date	Nielsen Nationwide Rating
1	2019-02-08	0.03266
2	2019-02-09	0.03038
3	2019-02-15	0.02762
4	2019-02-16	0.02497
5	2019-02-22	0.02804
6	2019-02-23	0.02666
7	2019-03-01	0.02253
8	2019-03-02	0.02115
9	2019-03-08	0.02218
10	2019-03-09	0.02418
11	2019-03-15	0.02340
12	2019-03-16	0.02515
13	2019-03-22	0.02366
14	2019-03-23	0.02031
15	2019-03-29	0.02230
16	2019-03-30	0.02632