Music Popularity Influencing TikTok Videos

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Introduction

Objectives: The main goal of this study is to confirm that the popularity of music is influencing the number of videos made on TikTok made for those popular songs. The population of interest are popular songs worldwide. The stakeholders for this study are music artists, music streaming services and TikTok users.

- The expectations for this study are as Spotify streams increase, TikTok videos also increase when the song appears on the Billboard charts.

Research Questions:

Research Question 1 –Is the popularity of a song on Spotify increasing the number of videos on TikTok?

Research Question 2 – Does a song having a spot on the Billboard chart influence the amount of TikTok videos made for that song?

Methods

Data Collection:

- The sampling units in my data are popular songs on Spotify from 2018 to 2019.
- The final sample size is 60 songs.

Measures:

- The response variable, TikTok videos, is measured by number of TikTok videos. The explanatory variable, Spotify, is measured by number of Spotify streams. The second explanatory variable, Billboard Chart appearance, has two groups: song appeared, and song did not appear.

Analysis Method:

- With RStudio software, I ran the General Linear Model for this analysis.

Descriptives

Response Variable:

Table 1 – Descriptive Statistics (n=60)

	Median	IQR
TikTok Videos	31,250	2,700,000

Explanatory Variables:

	Median	IQR
Spotify Streams	766,966,733	2,812,997,573

Billboard Appearance	Frequency	Proportion
Yes	26	0.433
No	34	0.567

Results

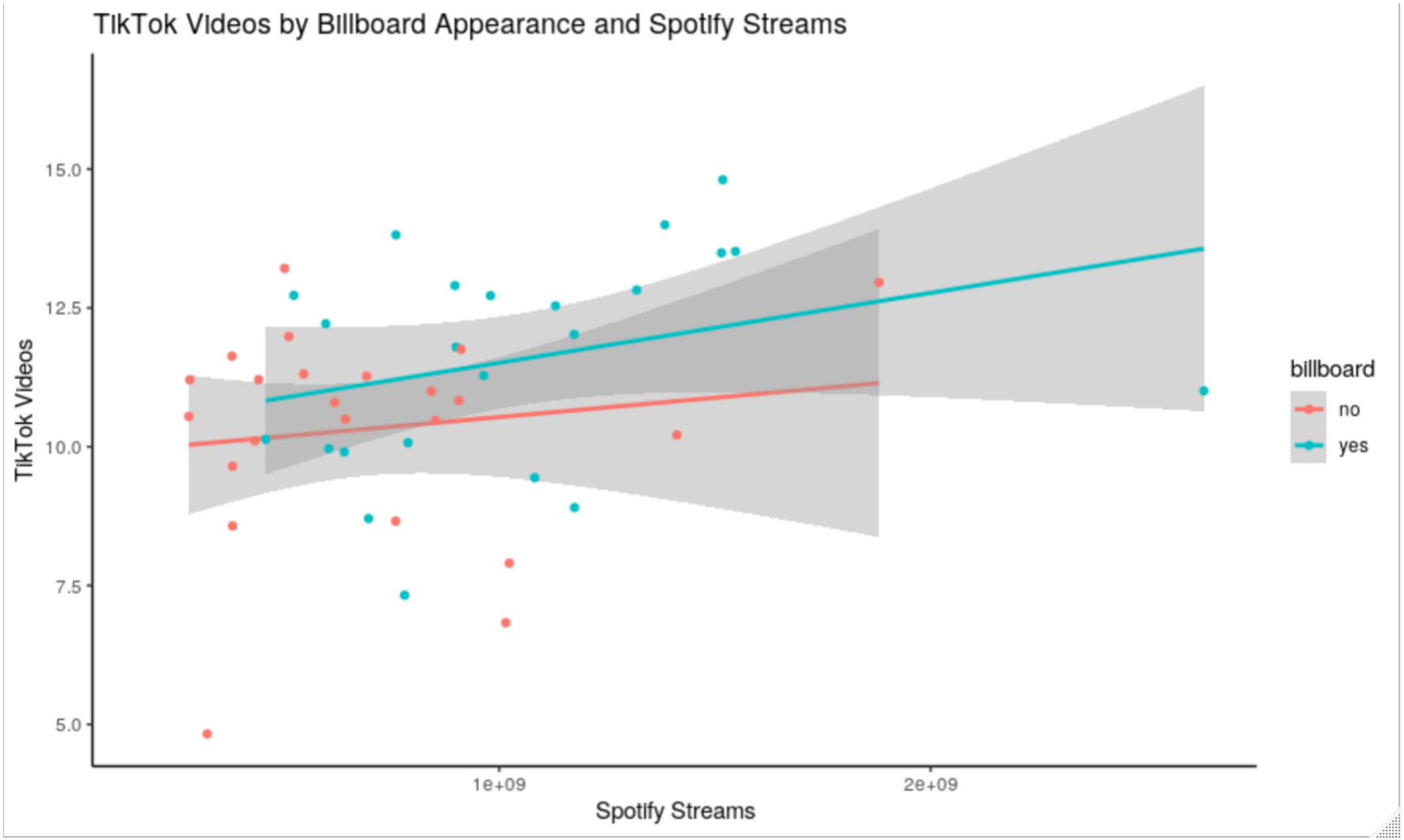
Results table:

Table 2 – General Linear Model Results

Variable	Estimate	T value	P-value
Intercept	10.44	23.799	<2e-16
Billboard1	0.9006	1.464	0.151
Spotify_c	6.952e-10	0.654	0.517
Billboard1:Spotify_c	5.639e-10	0.412	0.682

- **Adjusted R^2 = 0.08898; p-value = 0.07545**

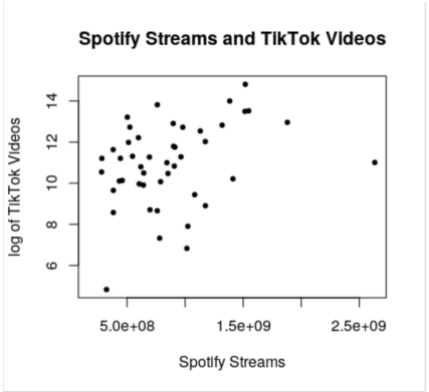
Interaction Plot

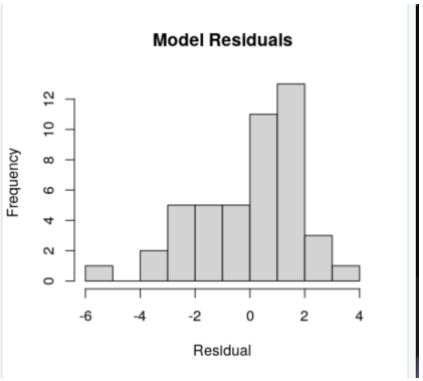


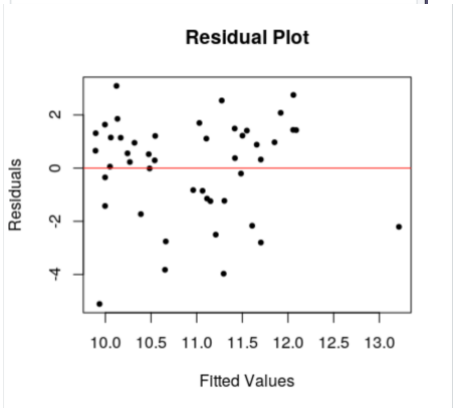
Assumptions

Assumptions:

- Random sample and independent observations were met with the study design.
- To confirm the linearity of numeric predictors, I used a scatterplot. The assumption was met with the response variable data transformed.
- To confirm equal variance of residuals, I used a residual plot. The values are random and does not show any funneling therefore, the assumption was met.
- To confirm normal distribution of residuals, I used a histogram of model residuals. The model residuals seem relatively normally distributed; therefore, it passes the assumption.







Discussion

Interpretation:

- Billboard: When Spotify streams are at the mean, songs that appeared on the Billboard charts and songs that did not appear on the Billboard charts did not significantly differ in the number of TikTok videos. ($t=0.9006$, $p>0.05$)
- Spotify: Spotify streams did not significantly, linearly relate to number of TikTok videos for songs not on the Billboard charts. ($t=0.654$, $p>0.05$)
- Interaction: The effect of Spotify streams on number of TikTok videos made for a song does not depend on the appearance of the song on the Billboard charts. ($t=0.412$, $p>0.05$)
- Overall: The appearance on Billboard charts, Spotify streams and their interaction do not explain a significant amount of variance in the number of TikTok videos made. ($F=2.465$, $p>0.05$)
- A confounding variable that could have affected the significance of this study is the time the songs were released. If some songs were much older than others, those songs would have had more time to stream on Spotify and end up on the Billboard charts.
- **Limitations:** Most songs on the Billboard charts are western songs, in contrast to TikTok and Spotify which are used internationally. This caused bias within my sample because it was not representative of the entire population of popular songs.

Implications: Even though a visual analysis showed a relationship with all variables, the test showed that there is no relationship between Spotify streams and Billboard chart appearance on the number of videos a song has on TikTok.

- An implication for popular songs worldwide is to promote the songs to a larger audience that range different ages, which would help influence popularity that could eventually lead to being popular on TikTok.
- With these results, stakeholders might have to advertise in order to reach the intended audience of TikTok users to gain popularity on the app.
- A potential consequence due to these results is that it will be harder for songs to be heard by remain popular if it does not maintain its popularity on popular apps.

Future Research: A possible expansion of this research is to add more variables that contribute to the increasing popularity of songs, including views on YouTube videos and the age of users on the TikTok app.

- If I conducted this study again, I would change the response variable to Spotify streams and the explanatory variable to TikTok videos. This is because TikTok has become a very popular app where it is easy to become viral, which could give a great popularity boost to any upcoming artists and their songs.

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