Do The Winners Take It All?

How Covid-19 Affected Playlist Followers on Spotify

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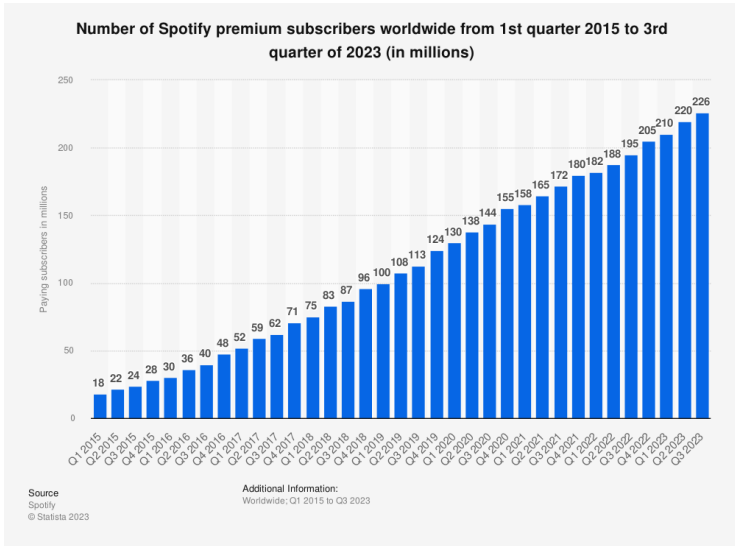
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Executive Summary

- Music industry got negatively affected from COVID-19 Pandemics, yet, music streaming platforms' users keep growing after the pandemic
  - It is unlikely that the pandemic affected all stakeholders on music streaming platforms in the same way
- We study how COVID-19 affected the followers of playlists curated and operationalized by different stakeholders by quantifying the effect of the COVID-19 pandemic on the change of playlists' followers
- Winner seems to take it all
  - The playlists curated by the music streaming platform more resistant during the pandemic time
  - Popular playlists from Spotify did not seem to get affected and The less popular playlists become more popular
  - No evidence of playlists with more major labels share gain more followers Playlists with more popular tracks seem to become more favorable
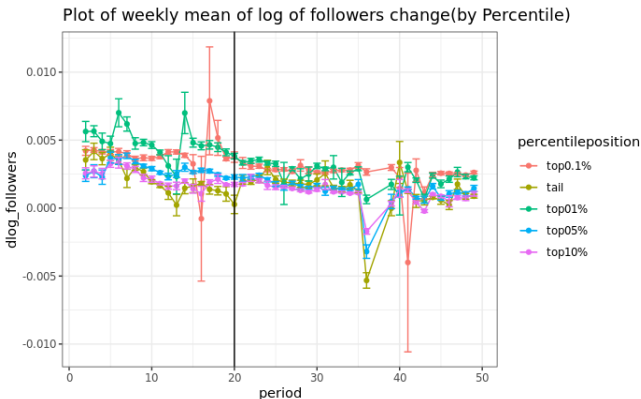
COVID-19 & Music Industry

- The revenues from digital downloaded and physical products dropped for 20% in the end of 2020 (RIAA, 2021)
- Revenues from streaming grew by 19.9% in 2020
- Previous research has been studying the effect of Covid-19 on streaming platform
    - COVID-19 outbreak significantly reduced music streaming consumption in many countries (Sim et al., 2022)
    - In Germany, monthly consumer spending on music decreased by more than 45% compared to pre-pandemic, with live music events and physical sales being the most severely affected (Denl et al., 2022)
- Still, no study has documented how the pandemic affected music streaming consumption via playlists (i.e., followers), documenting the heterogenous effects across curators (e.g., Spotify, music labels)
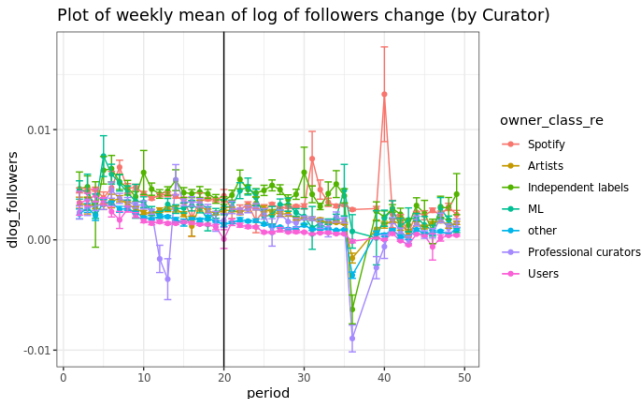
(Model-free) Evidence

Number of Spotify premium subscribers worldwide from 1st quarter 2015 to 3rd quarter of 2023 (in millions)

(Model-free) Evidence

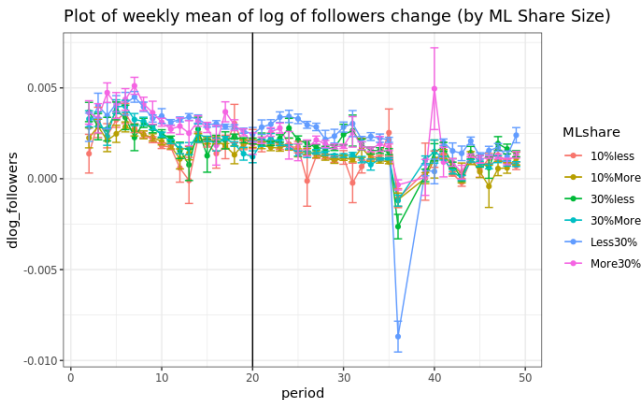Plot of weekly mean of log of followers change(by Percentile)

- Varying fluctuation of follower growth across different percentile after the pandemic (after the black vertical line at week = 20) compared to prior weeks (period)

(Model-free) Evidence

Plot of weekly mean of log of followers change (by Curator)

- Varying fluctuation of follower growth across playlists curated by different curators after the pandemic (after the black vertical line at week $= 20$) compared to prior weeks (period)

(Model-free) Evidence

Plot of weekly mean of log of followers change (by ML Share Size)

- Varying fluctuation of follower growth across playlists with different share of major labels after the pandemic (after the black vertical line at week = 20) compared to prior weeks (period)

Research Question

- Are the playlists curated by the music streaming platform more resistant during the pandemic time?
- Do playlists with more major labels become more favorable during the pandemic time?
- Do popular playlists become more popular during the pandemic time?

Conceptual Framework
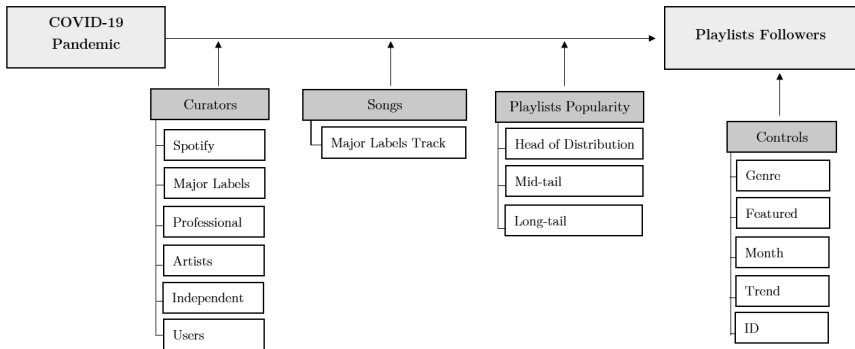
The framework demonstrates how curators' factors, songs' factors and playlist popularity may help mitigate/aggravate the effect of Covid-19 Pandemic

Data

- We analyze the sample playlists available on Spotify covering of 19 weeks before and 30 weeks after the pandemic declaration on 11 March 2020.
    - Source: *Chartmetric.com's API*
        - 1.2m playlists information obtained in April 2020
        - 151,039 active playlists followers' information
        - 104,835 playlists with 49 consecutive weeks of followers' information
    - Source: *Everynoise.com/worldbrowser.cgi*
        - Featured playlists on Spotify

Data

- We retained 39,918 playlists (whose 96% are global playlists) with complete relevant information for our estimation
    - Number of weekly follower
    - Playlists' attributes
        - Share of major labels (ML) contents
        - Number of tracks
        - danceability, energy, speechiness, etc.
        - Popularity: On average, on how many playlists were tracks on this list added on spotify?
    - Playlists' classification (i.e., genres) by using association rule technique to classify relevant genre for the playlist
    - Number of sections playlists got featured

Descriptive Statistics for Playlists Sample

Curator	Spotify	ML	Professional	Artists	Indie	Other	Users
# Playlists	3,504	2,195	4,834	5,626	1,399	18,032	4,328
Avg. Followers	217,546	10,511	14,400	10,085	8,291	4,443	569
Avg. ML Share	51.46	77.81	53.74	50.78	28.31	54.82	56.55
Top 0.1 Percentile (52% Cumulative Follower Share)	608	1	18	16	2	0	0
Top 1 Percentile (84% Cumulative Follower Share)	1,581	220	665	433	92	574	0
Top 5 Percentile (97% Cumulative Follower Share)	856	880	1,678	2,185	524	8,412	1
Top 10 Percentile (99% Cumulative Follower Share)	263	643	1,370	1,897	483	6,195	2,131
Tail	196	451	1,103	1,095	298	2,851	2,196

## Estimation Model

- We employed fixed effect model on followers growth as follows:

$$\Delta ln(Follower_{i,t}) = c_i + \beta_1 Covid_t +$$
$$+ \beta_2 Covid_t * Curator_i$$
$$+ \beta_3 MLShare_{i,t} + \beta_4 Covid_t * MLShare_{i,t}$$
$$+ \beta_5 AvgTrackShared_i + \beta_6 Covid_t * AvgTrackShared_i$$
$$+ \beta_7 PlaylistPercentile + \beta_8 Covid_t * PlaylistPercentile$$
$$+ \alpha_k X_k + \varepsilon_{i,t}$$

- $Covid_t$ is a COVID-step variable.
- β_2 captures the pandemic fixed effect on curators
- β_4 captures the pandemic fixed effect on content (i.e., track) providers
- β_6 capture the pandemic fixed effect on tracks popularity
- β_8 capture the pandemic fixed effect on playlists popularity

Covid Effect on Playlists Popularity and Curator

The estimated weekly effect of pandemic declaration(Using Delta Rule)
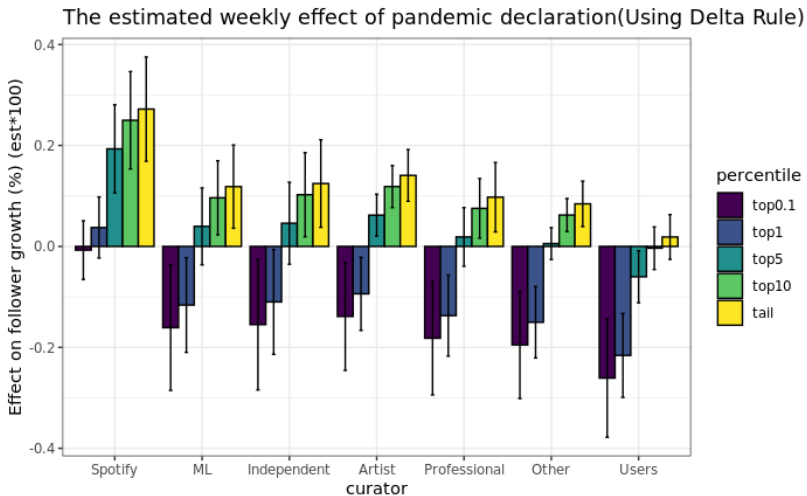
Government Restriction (i.e. Stringency Index) Effect on Playlists Popularity and Curator

The estimate weekly effect of a change in stringency index
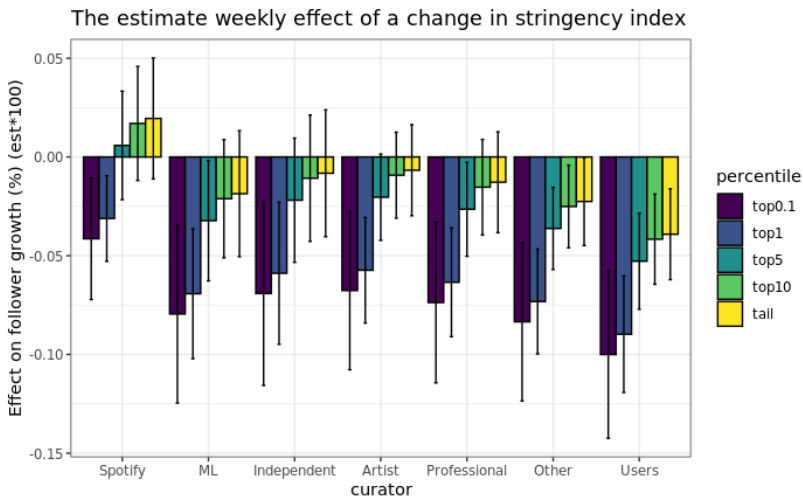
Estimated Effect (and SE) on Track and Playlist Popularity

Log(ML Share)	0.000024
	(0.00001)
$Covid_t$:Log(ML Share)	-0.000003
	(0.000002)
Log(AvgTrackShared)	0.000831*
	(0.000359)
$Covid_t$:Log(AvgTrackShared)	0.000226***
	(0.000051)

Conclusion

- Are the playlists curated by the music streaming platform more resistant during the pandemic time?
    - Yes
- Do playlists with more major labels become more favorable during the pandemic time?
    - Popular playlists from Spotify did not seem to get affected
    - The less popular playlists become more popular
- Do popular playlists become more popular during the pandemic time?
    - No evidence of playlists with more major labels share gain more followers
    - Playlists with more popular tracks seems to become more favorable

Recommendation

- The streaming platform who acts as a player has power over other stakeholders and can steer demand within the platform (and subsequently affect the demand across channels)
    - Regulation may be required to promote a fair competition
- Playlist curators can exploit their existing popular playlists to promote non-popular tracks while keep curating less popular playlists to attract more followers