

Technical Note - Music Data 🎵

This note explains the methodological approach, data processing and potential limitations of the music metadata used in the visualizations. It describes how exploratory music indicators and key industry trends across digital channels were derived from the analysis of granular, track-level online consumption data.

Primary data sources include the weekly Top 200 of the Apple Music Streaming Global Charts from 2017 to 2024,¹ the weekly Top 100 of the Apple iTunes Live National Charts from 2013 to 2022,² the [WhoSampled.com](https://www.whosampled.com) database covering music reuse and sampling from 1950 to 2021,³ and the Chartmetric Make Music Equal [database](#),⁴ including artist gender and music genre information. For each unique song in the music charts, additional metadata on the country of first release as the approximate place of music production was obtained from private data providers.

The aggregated data can be accessed via the link provided in the footer of each data visualizations. For technical assistance and further questions, please reach out to chief.economist@wipo.int.

Music Genre

Music genre information from Chartmetric is matched using an exact string-matching approach via the first listed music performer (name) for a given chart song.⁵ For approximately 51 (49) percent of all songs in the Apple Music (Apple iTunes) data, we can match and associate songs with more than 200 different music genres.

Music genre indicators are constructed by aggregating the total number of unique songs in a given genre and time period, and by calculating their respective shares in the total number of charting songs.

¹ Data last accessed on Oct. 1, 2024, and hence 2024 data is incomplete. The total sample consists of 30,537 unique music tracks.

² Apple iTunes Live National Charts information is only available for a selected number of territories (i.e. a total of 19 music markets), namely Australia, Belgium, Brazil, Canada, France, Germany, Republic of Ireland, Italy, Japan, Mexico, Netherlands, New Zealand, Russian Federation, South Africa, Spain, Switzerland, Türkiye, United Kingdom, and United States of America. Data last accessed on Oct. 1, 2024. 2023 and 2024 data are unavailable. The total sample consists of 793,219 unique music tracks.

³ Data last accessed on March. 31, 2021, and hence 2021 data is incomplete.

⁴ Data last accessed on Jan. 1, 2025.

⁵ Before the matching procedure, we standardize music artists names, e.g. by converting non-Latin artists' names into Latin characters in the music charts data, as Chartmetric standardizes to Latin characters.

Artist Gender

Artist gender information from Chartmetric is matched using an exact string-matching approach via the first listed music performer (name) for a given chart song. For 72 (51) percent of all unique performers in the Apple Music (Apple iTunes) sample, we find a match. Matched artists account for close to 90 percent of all unique songs included in samples.

The Chartmetric data holds the following gender information and main categories, namely, “female”, “male”, or “mixed” groups of artists (bands). Androgynous, genderqueer, non-binary and not specified gender categories are subsumed as “other gender” artists in our analysis. Chartmetric contains information on approximately 680K artists whose pronouns are listed in artist bios collected from various streaming services. Chartmetric uses pronouns to approximate artist gender according to their [website](#).

Artist gender indicators are constructed by aggregating the total number of unique songs for a given gender category and time period, and by calculating their respective shares in the total number of chart songs.

Music Origin

High-quality country of release information is matched by unique song title. More specifically, this approach is artist agnostic, as it attempts to determine in which country a sound recording was originally recorded and first released (i.e., country of production). For example, if a Belgian artist and a Russian artist get together in Argentina to record and release a song, the song will be considered Argentinian.

Country of release information is missing for approx. 5 (15) percent of all unique songs in Apple Music (Apple iTunes) samples. If multiple release countries are associated with a song, we take a conservative approach and remove songs with conflicting release information from samples, accounting for approx. 5 and 8 percent, respectively. Songs are released in more than 50 (100) different territories in Apple Music (Apple iTunes) samples.

Music Trade

Based on the music origin information (see prior section), the following indicators of music trade are derived from the data. First, we approximate the annual contribution of countries to the global charts and corresponding country ranks by aggregating songs for the same country of release and calculating their share of the total number of unique songs entering

the charts in a given year. Second, we consider a song to be "local" if songs are first released domestically and consumed in the same country, i.e., cases where the song's country of release is identical to the country of consumption. "Glocalization" rates are calculated as the ratio of the aggregated number of unique domestically released songs to the total number of unique songs consumed in the same territory and time period. Third, "music import" shares are constructed as the ratio of the aggregated number of unique songs from a given release country abroad to the total number of imported songs in a given market, i.e. we restrict to cases where the country of release is not the same as the country of consumption.

Music Sampling

The [WhoSampled.com](https://www.whosampled.com) database is user-generated and website users identify and document instances when individual music tracks ("destination") reference or cite older music tracks ("origin") by either (a) direct sampling, (b) interpolation, or (c) cover songs. The data provides further information on the music genre and year of first release of origin and destination tracks. We aggregate the data to build indicators, and approximate citation flows and sampling activity over time between different and within the same music genre.

Data Accuracy

While Apple Music is one of the largest streaming services in the world, its reach and global chart data coverage are not without limitations. It may less well represent certain regions and countries around the world because they are weighted differently in the global chart calculation, reflecting their market sizes and local streaming activity. It should also be noted that the gradual expansion of Apple Music streaming services over time may introduce additional bias in terms of country coverage and representation in the global chart data. Similar applies to [WhoSampled.com](https://www.whosampled.com) which is likely to have better sampling coverage of music released on U.S. and European markets as well as music genres such as Hip-Hop/Rap, Electronic/Dance and Pop/Rock.

In general, the data does not provide a view of music production and performance across the entire music value chain, as it focuses narrowly on music performers in the top segment of the music market. Only a small subset of all recorded and released music enters national or global charts during the observation period and in selected markets. Moreover, this approach excludes other music creators and stakeholders involved in the production and distribution of music, such as music composers or producers. WIPO is actively seeking to

improve and expand music metadata coverage to provide a more comprehensive view of the music industry value chain in the near future.