Analyzing Elvis Presley*

The Increasing Energy Levels in Fan Preferences

David Qi Chendong Fei

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This paper examines the albums of Elvis Presley (1935–1977) available on Spotify. Our analysis reveals that the energy levels of these albums have increased over the years. However, a similar trend is not observed for tempo, indicating that while the musical preferences of Elvis fans have shifted towards more energetic tracks, their preference for tempo has remained consistent.This provides helpful guidance for the music industry in creating new Elvis Presley remixes.

1 Introduction

Elvis Presley (1935-1977) is an American celebrity who gained immense popularity worldwide beginning in the 1950s. His enduring fame allows us to analyze how audience tastes have changed over the years. We find that the energy of these albums has increased over time, while tempo has remained constant. This suggests that Elvis fans' musical preferences have shifted toward more energetic music, while their preference for tempo has not changed.

In this paper, we make use of R (R Core Team 2023) and the tidyverse package (Wickham et al. 2019), with support from the dplyr package (Wickham et al. 2023), to analyze Spotify (an online music platform launched in 2008) data related to Elvis Presley (1935-1977). The dataset was obtained from the Spotify API (Spotify 2024) using the spotifyr package (Thompson et al. 2022). The graphs were created using the ggplot2 (Wickham 2016) and gridExtra (Auguie 2017) packages in R. We have also used some information and code from the book Telling Stories With Data (Alexander 2023) for accessing the API.

The remaining part of this paper is structured as follows: We discuss the basic aspects of the data in the Data section. Then, we analysis the data in the Results section. We then discusses our finding and draw on possible limitations in the Conclusions section.

*Code and data are available at: https://github.com/UTDQi/Elvis_Analysis

2 Data

In this section, we discuss aspects of the data and outline how it will be used.

As shown in Figure 1, the release dates of albums span from 1956 to 2024. Note that album releases were suspended in 1977 (marked by the red dotted line) when Elvis Presley passed away, and resumed after 2010. This resumption is due to Spotify's new licensing agreements, which allowed the release of new albums by classic artists.

There were also many albums released in 1997, 20 years after Elvis Presley passed away. These albums were released to recognize this event.

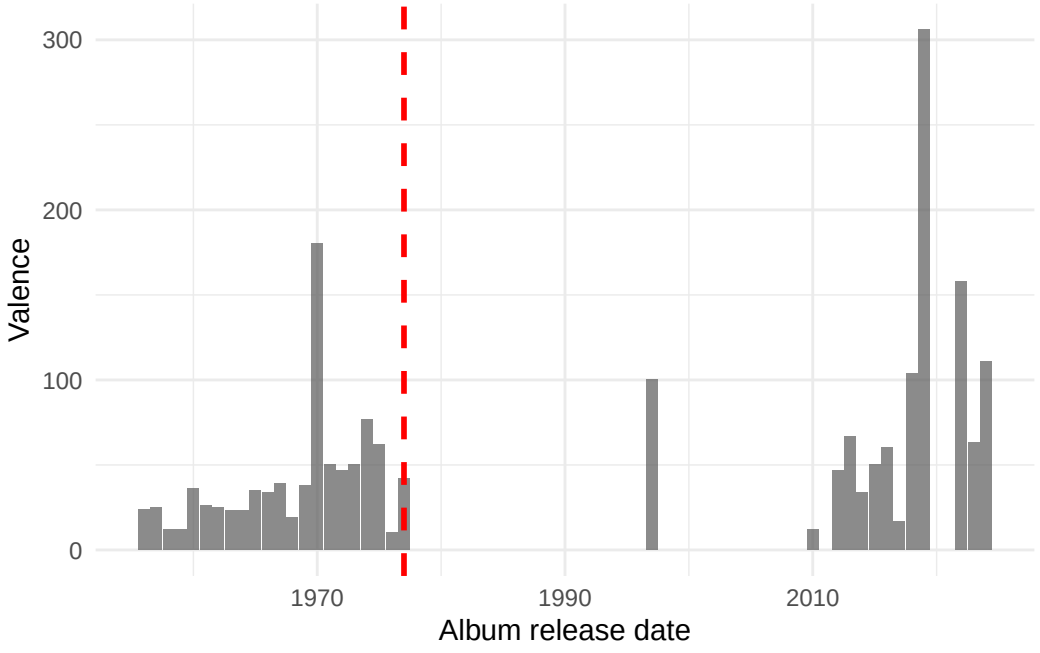

Figure 1: Albums Released Each Year

In this paper, we will analyze these two groups of albums to examine how people's tastes have changed over the past 30 years. We note that albums released during this time reflect the general preferences of the audience, as album producers tend to select and remix songs based on prevailing tastes.

To represent the abstract concept of 'taste,' we will use data on the energy and tempo of the music. It's important to note that this data is generated by a machine learning model about which we have limited information on. As a result, it may not fully capture the actual 'energy' or 'tempo' of the music. However, it provides a useful generalization of these factors. The fact that Spotify uses this data indicates its usefulness for analysis.

3 Results

3.1 Energy

We first analysis the energy. Figure 2 and Figure 3 shows the change in energy across the years.

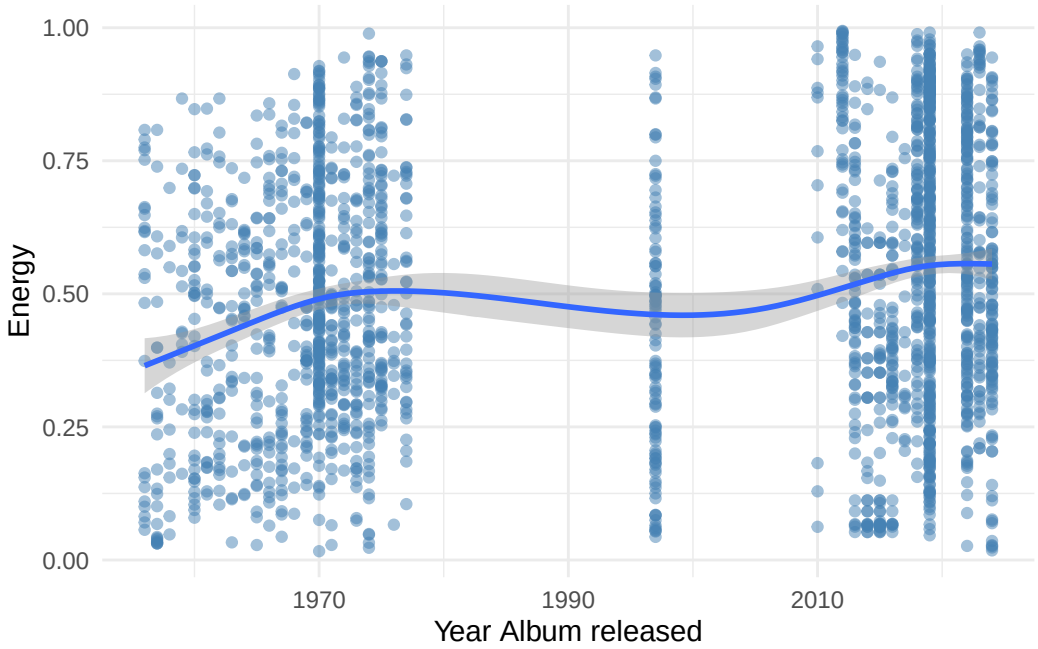

Figure 2: Change in energy acrocess the years

Initially, in the pre-1970s era, the energy levels of albums are relatively moderate, with a gradual increase reaching a peak around the 1980s. This trend continues after the year 2010, when the energy levels of albums rises again, reflecting a general increase in the intensity and dynamism of music in more recent years. For instance, as shown in Figure 3, the mean energy level (represented by the red dashed lines) before 2010 is 0.467, while the mean energy level after 2010 has increased to 0.549. Overall, the graph suggests that while music energy has increased over time, more recent albums tend to have higher energy on average.

3.2 Tempo

We now turn to analysis the tempo. Figure 4 and Figure 5 shows the change in tempo across the years.

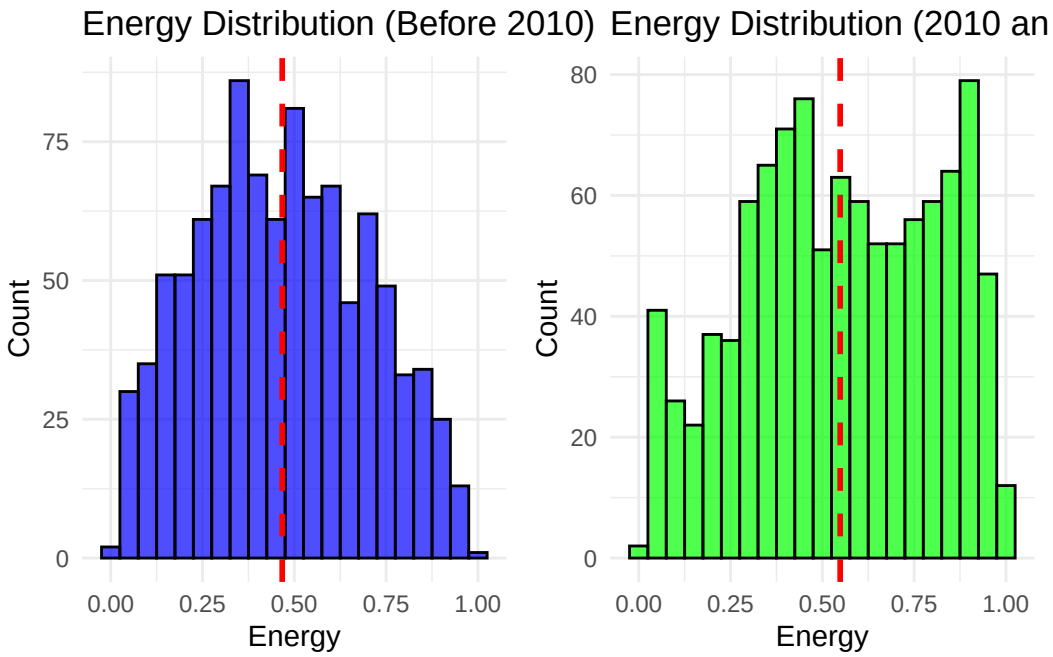

Figure 3: Compaing Energy of The Two Time Periods

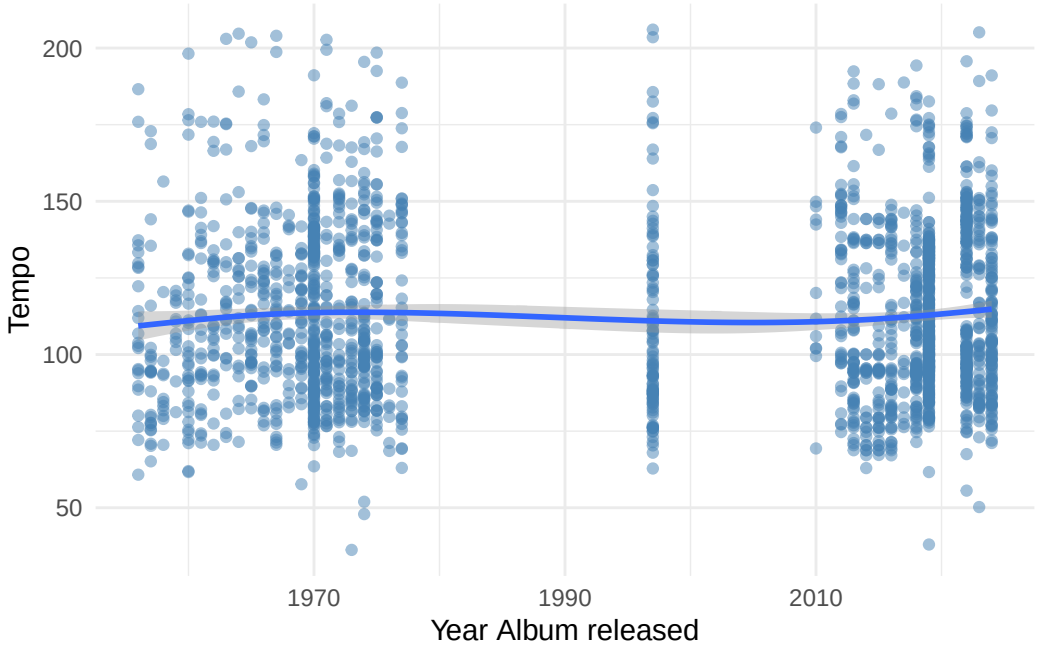

Figure 4

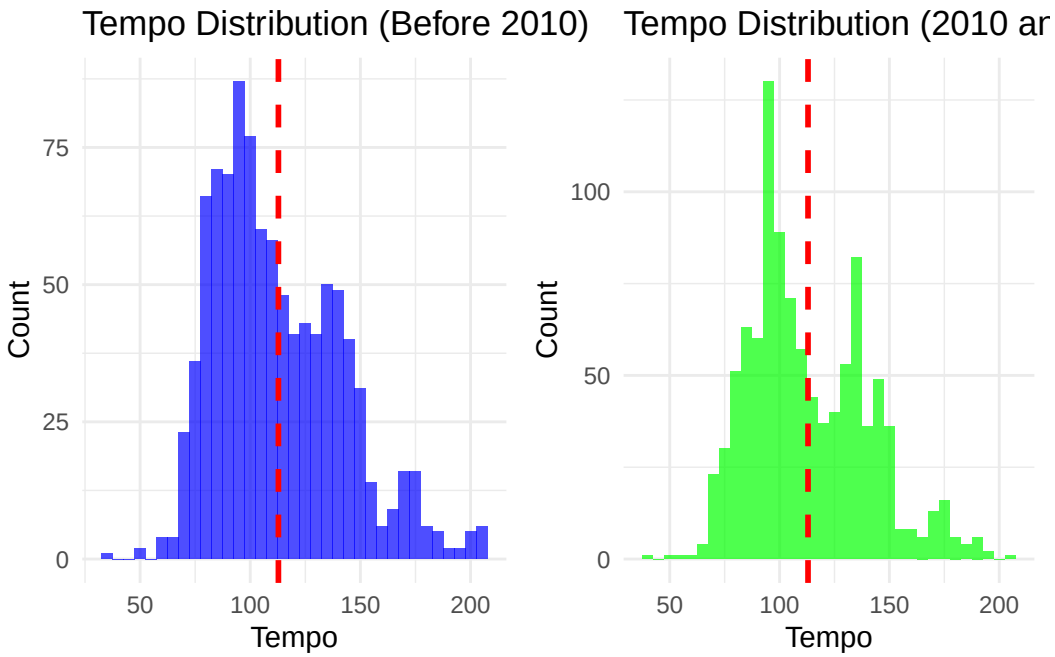

Figure 5

For tempo, we see a different trend, the tempo of the musics selected to be included in the album of Elvis Presley have not changed much over the times. From Figure 5, we can see the mean of the tempo(the red dashed lines) before 2010 is 112.78, and the mean after 2010 have have changed 112.94. Which is a very small change.The shape of the two graphs in Figure 5 are also similar, suggesting the selection of music have experienced no major change if we evaluate form tempo. Figure 4 also showed the Smoothed conditional means close to a straight line, indicating that the tempo have not changed over time

4 Conclusions

Form our Results section, we see that the energy of the music have experienced a increase over the years. This signifies that, in the 21^{st} century, Elvis Presley songs that are more energetic tend to be selected into new albums, and people tend to make new remixes of these songs that are more energetic.

However, energetic does not mean fast. People's taste of tempo have not changed much over the time. And there is no similar favor over faster music.

4.1 Limitations

We note that Energy is a variable that is difficult to find the meaning to, and may not perfectly match our instinctive definition of "energy of music". Further information of the data is required to understand what "energy" accurately represent. Future studies should focus on aspects of the data that are more explainable and understandable.

Also, this analysis only reflect the change in musical tasted of Elvis Fans, which is very small proportion of the general population, future research may use data on more artists to gain a comprehensive on the subject.

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