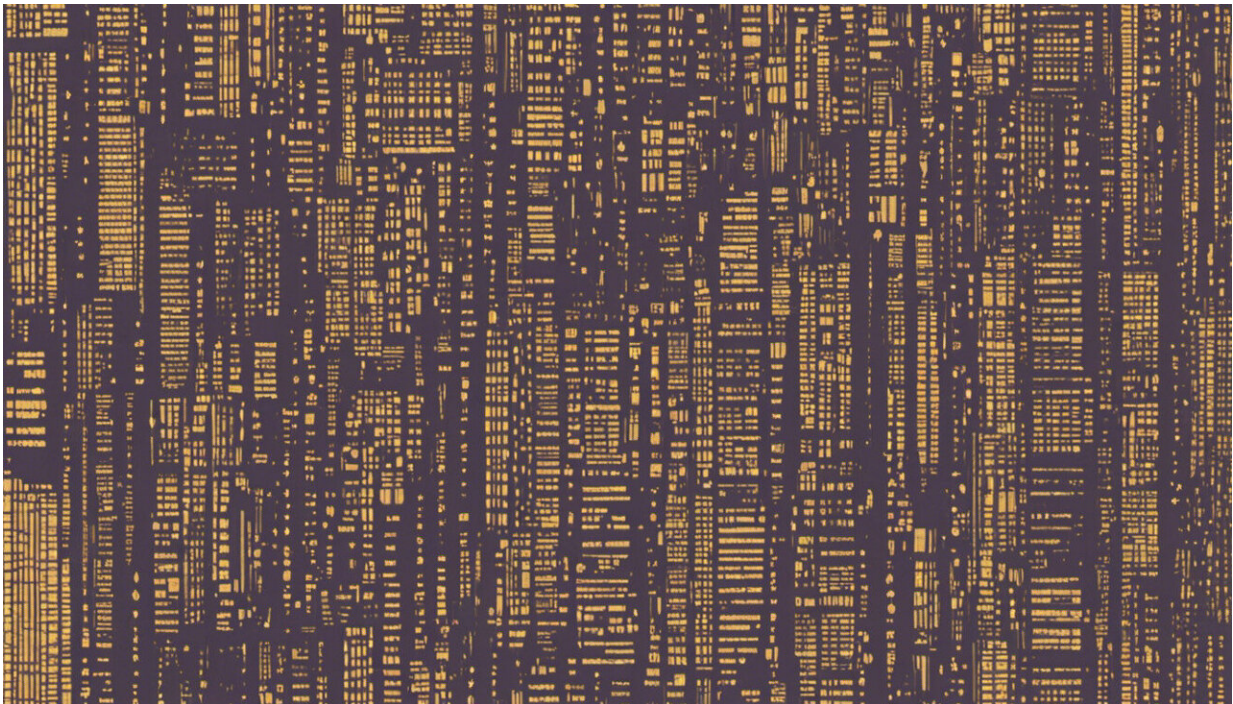


# Your Spotify history could help predict what's going on with the economy

May 9 2018, by Kim Kaivanto And Peng Zhang

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Credit: AI-generated image ([disclaimer](#))

The Bank of England's chief economist, Andy Haldane, [has urged](#) his colleagues to examine the musical mood of the nation when contemplating changes to the Bank's interest rate. How could an increase in [Taylor Swift downloads](#) or a decline in the popularity of rock and roll be relevant for managing the economy?

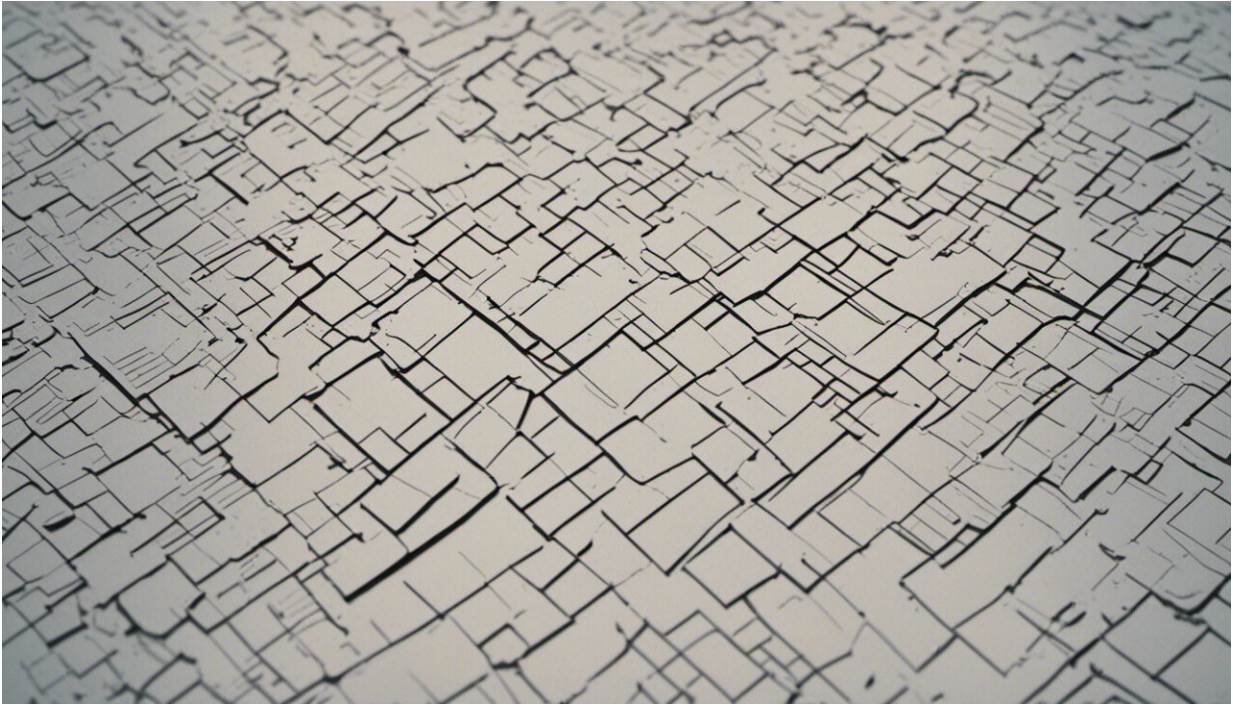
It all comes down to measuring economic sentiment. This is a way of gauging how people feel about the economy, which behavioural economists use to make predictions about how it will respond to different policies. For example, if people are generally pessimistic about the economy then raising interest rates might encourage them to stop borrowing and spending by so much that it harms the economy.

For some time already, researchers have been able to measure economic sentiment by analysing the language used in large numbers of online [news stories](#) and [Twitter posts](#). But recently, [researchers from Claremont Graduate University](#) have shown that sentiment may be extracted from pop music top-100 lists and music platforms such as Spotify. What's more, these new sentiment indicators are at least as useful as conventional surveys of consumer confidence.

The idea is that songs have an emotional component that anyone can relate to, encoded in musical attributes such as the songs' energy, tempo and volume. Online music services such as Spotify already use these kinds of attributes to categorise songs and [recommend new music](#) to users based on similar tracks they have already listened to.

You can also understand the emotions expressed by songs from their lyrics, depending on your cultural background. These can be analysed using the same "natural-language processing" software that is used to assess the language of news and Twitter feeds.

This can be done in a simple fashion, encoding words' positive or negative emotional loading, or more elaborately by matching words [to eight core emotions](#): joy, sadness, anger, fear, disgust, surprise, trust and anticipation. The software then counts up the number of times each emotion is cued within a song's lyrics.



Credit: AI-generated image ([disclaimer](#))

By identifying the emotional components of the most popular songs, researchers can put together a picture of listeners' own feelings and use this to predict economic sentiment. Running the emotion mapping exercise on all songs in a top-100 chart captures the lion's share of new music being purchased and listened to on a month-by-month basis.

This is where the advantages of using "big data" from [large numbers](#) of people come to the fore. Survey results only tell you what people who have chosen to participate want you to know. Music charts, on the other hand, reflect actual consumer choices from a much wider group of people.

## **Emotional downturn**

The Claremont researchers [applied this technique](#) to charts from before and after the 2008 global economic crisis. They found that, after the crash, the frequency of words associated with anger and disgust increased while the frequency of words associated with trust decreased. This type of evidence strongly suggests that music consumers' states of mind do have a bearing on what music they choose to pay for and listen to.

This research and Andy Haldane's comments suggest that both the [music](#) and lyrics of popular songs can indeed be used to predict economic sentiment, and even short-term stock market movements. Streaming services such as Spotify and Apple Music are sitting on data that could help build a far more detailed map of economic sentiment than top-100 lists. Because these companies have data on individual households, we could even create sentiment indexes for different regions and groups of people (for example, based on how much they earn).

Calling for economists to consult the musical mood of the nation may seem somewhat surprising, bizarre even. But research suggests that the big data approach to tracking consumer sentiment really could be useful. It is just one aspect of the Bank of England's general drive to broaden and diversify the sources of information it consults in its analyses and decision making. And that should be welcomed.

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