



2017-03-28

American Prosperity Faces the Music

Douglas E. Archibald

Brigham Young University, mr.douglas.archibald@gmail.com

Follow this and additional works at: http://scholarsarchive.byu.edu/fhssconference_studentpub

 Part of the [Economics Commons](#)

The Annual Mary Lou Fulton Mentored Research Conference showcases some of the best student research from the College of Family, Home, and Social Sciences. The mentored learning program encourages undergraduate students to participate in hands-on and practical research under the direction of a faculty member. Students create these posters as an aide in presenting the results of their research to the public, faculty, and their peers.

BYU ScholarsArchive Citation

Archibald, Douglas E., "American Prosperity Faces the Music" (2017). *FHSS Mentored Research Conference*. 320.
http://scholarsarchive.byu.edu/fhssconference_studentpub/320

This Poster is brought to you for free and open access by the Family, Home, and Social Sciences at BYU ScholarsArchive. It has been accepted for inclusion in FHSS Mentored Research Conference by an authorized administrator of BYU ScholarsArchive. For more information, please contact scholarsarchive@byu.edu.

American Prosperity Faces the Music

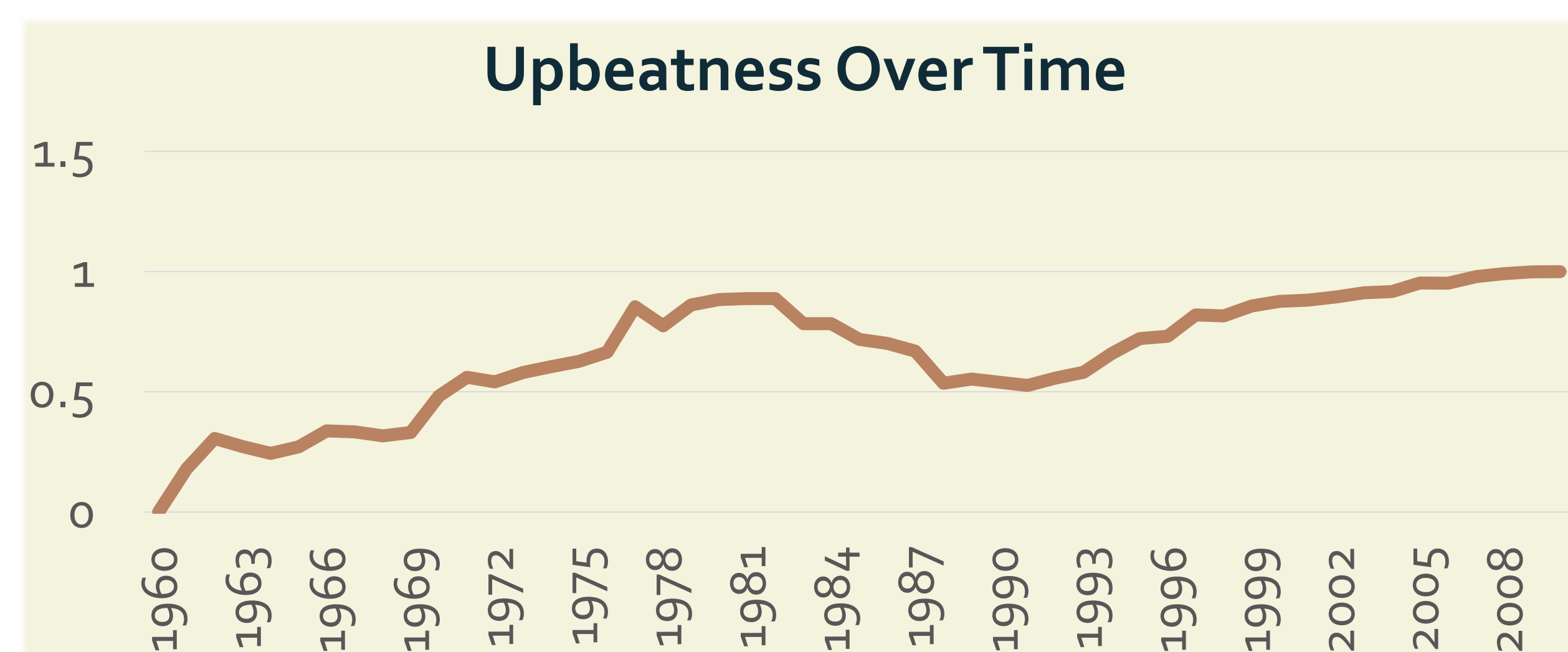


Introduction

On a daily basis music influences the entire human family. It uplifts congregations. It energizes rallies. It can inspire drug abuse. It can prevent suicide. It ceaselessly entertains, enlightens, and delights; molding societies and defining generations as it goes. If music influences people, what influences music? If we find that unknown influencer, can we use it to predict future music trends? The purpose of this study is to discover how the economic well-being of a nation can influence the demand for upbeat music (music in a major key that is louder and faster), and if the measurements of economic well-being can be used to predict future music trends.

Methods

1.) Using data from the One Million Songs project I determined the upbeatness of over 500,000 songs from 1960-2010. I then calculated the average of each year. Upbeatness is a measurement I used based on the sum of normalized tempo and loudness. Songs that are traditionally considered "upbeat" are usually louder and faster. For example, Queen's hit, *Don't Stop Me Now*, regarded as one of the most upbeat songs of all time, is 22% faster and 10% louder than the average 1978 song.



2.) I then gathered economic data from the Federal Reserve Economic Data (FRED). The data I used are measurements of prosperity and economic health. The data came from the years 1960-2010, and so there were 50 samples.



3.) Using Stata, I performed hypothesis testing on the data until I finally found this normally distributed, homoskedastic, non-multi-collinear, transformed model. It has estimators of a joint adjusted R squared of .7652, which signifies a high degree of correlation.

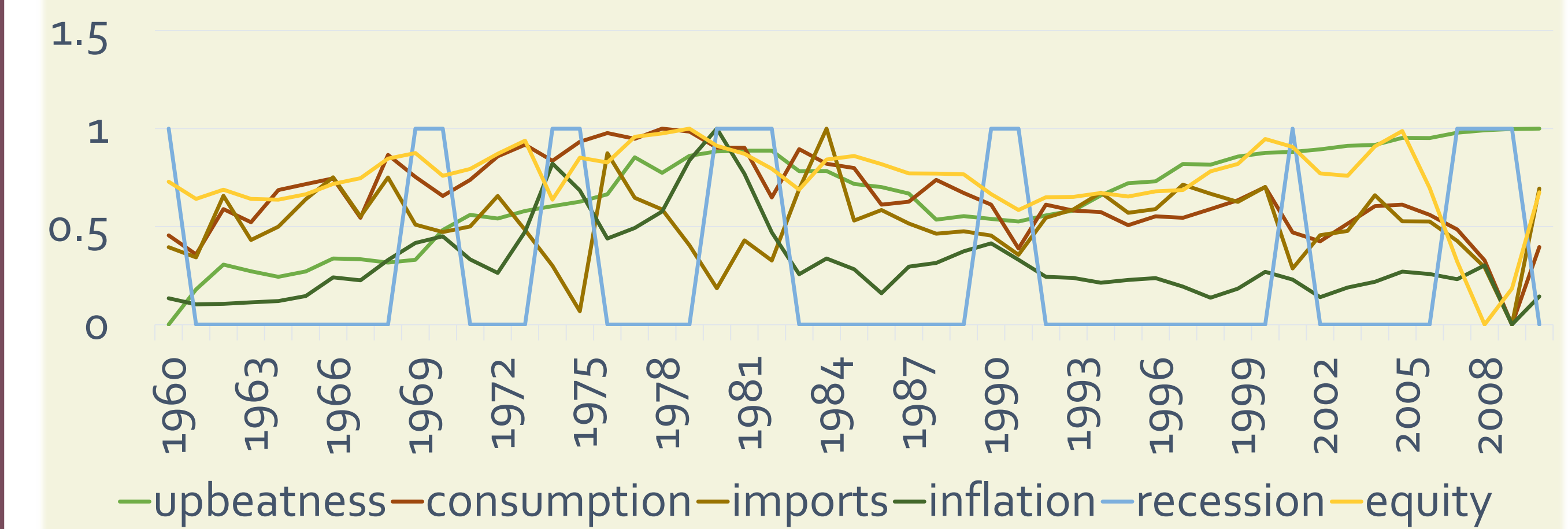
$$\beta_1 + \beta_2 \ln(\text{consumption}) + \beta_3 \ln(\text{imports}) + \beta_4 (\text{inflation}) + \beta_5 (\text{recession}) + \beta_6 \ln(\text{equity}) + \beta_7 (\text{laborpart}) + \beta_8 \text{taxes}$$

4.) Using the transformed model, I ran a regression of OLS estimators and got the following results.

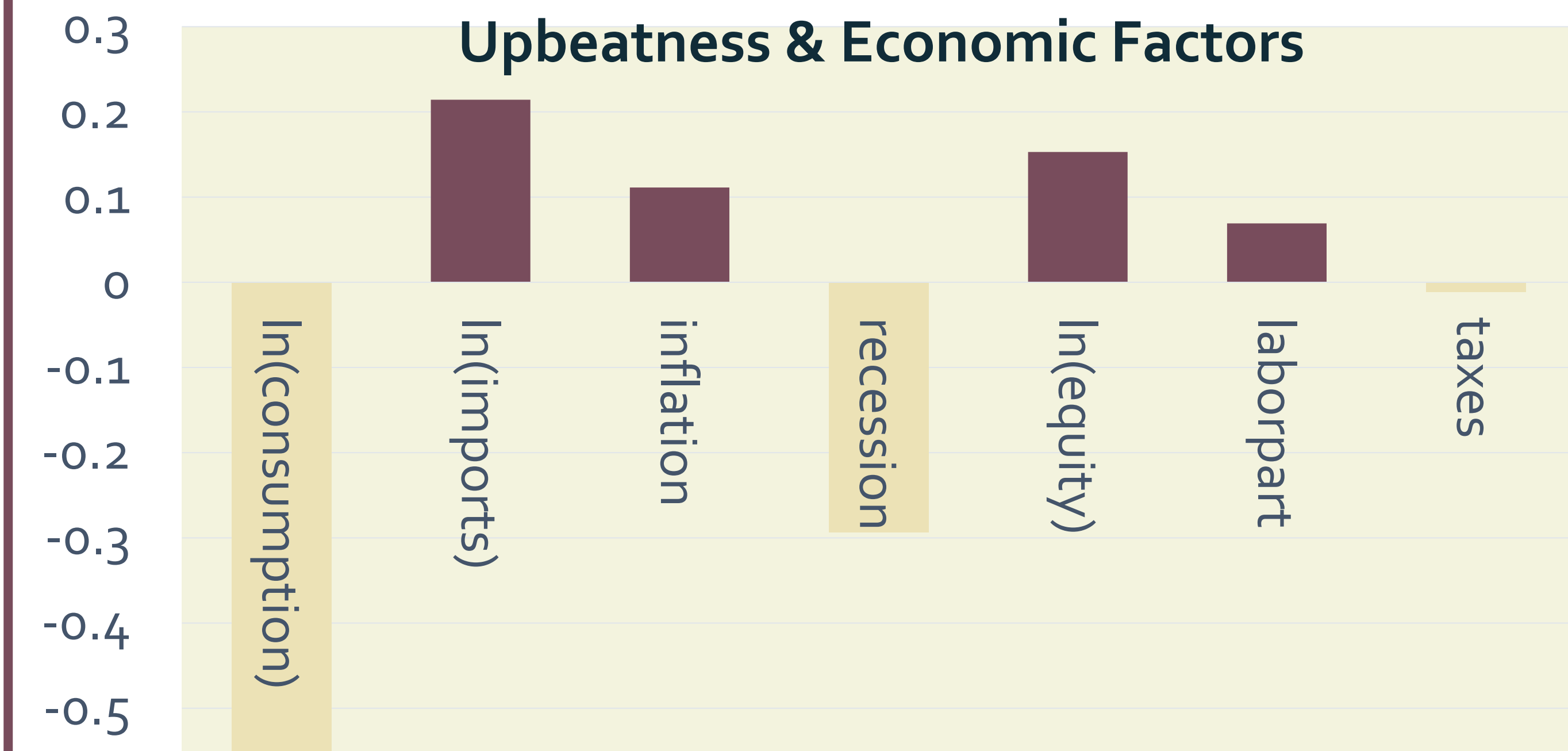
Results

Label	Coefficient	Standard Error	t	P> t
Ln(consumption)	-0.566224	0.2090347	-2.71	0.011
Ln(imports)	0.2142209	0.0694441	3.08	0.004
Inflation	0.1113385	0.0282595	3.94	0
Recession	-0.2935632	0.1165649	-2.52	0.017
Ln(equity)	0.1528631	0.0489375	3.12	0.004
Laborpart	0.0690874	0.0123822	5.58	0
Taxes	-0.0110873	0.0051449	-2.16	0.039
Constant	-3.217807	0.9556331	-3.37	0.002

Changes In Upbeatness & Economic Factors Over Time



Correlation Coefficients Between Music



Discussion

- Based on their p values, Labor Participation and Inflation seem to have the strongest correlation to how upbeat music is.
- National consumption levels, recessions, and taxes all negatively correlate to music upbeatness
- Equity, inflation, imports, and labor participation all positively correlate to music upbeatness
- It would appear music taste and the health of the economy are correlated.
- Much more research is needed. I would like to examine different countries, have music data by month, find instrumental variables, incorporate other factors into upbeatness like key and genre, have other independent variables like propensity to save, and run an experiment where I examine music choices for people with varying levels of financial well-being.